

# SCOTTISH BIRDS



The Journal of  
The Scottish Ornithologists' Club

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*Vol. I No. 10*

*Winter 1960*

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FIVE SHILLINGS

## THE SCOTTISH ORNITHOLOGISTS' CLUB

**T**HE Scottish Ornithologists' Club was founded in 1936 and membership is open to all interested in Scottish ornithology. Meetings are held during the winter months in Aberdeen, Dundee, Edinburgh, Glasgow, and St Andrews, at which lectures by prominent ornithologists are given and films exhibited. Excursions are organised in the summer to places of ornithological interest.

The aims and objects of the Club are to (a) encourage and direct the study of Scottish Ornithology in all its branches; (b) co-ordinate the efforts of Scottish Ornithologists and encourage co-operation between field and indoor worker; (c) encourage ornithological research in Scotland in co-operation with other organisations; (d) hold meetings at centres to be arranged at which Lectures are given, films exhibited, and discussions held; and (e) publish or arrange for the publication of statistics and information with regard to Scottish ornithology.

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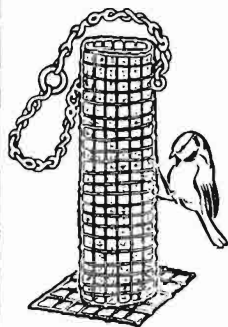
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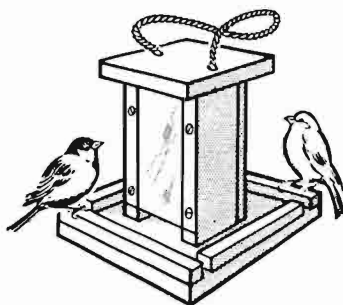
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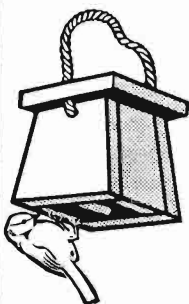
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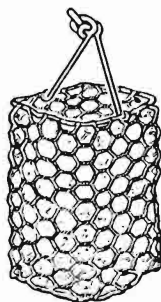
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# SCOTTISH BIRDS



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Edited by M. F. M. MEIKLEJOHN, with the assistance of D. G. ANDREW and A. T. MACMILLAN. Business Editor, ARTHUR J. SMITH. Cover design (Red-breasted Mergansers) by LEN FULLERTON. *Published quarterly.*

## Editorial

SCOTTISH bird-watchers are exceptionally fortunate in winter time, regularly seeing species for which their English colleagues would be liable to organise bus trips. Scots would, for example, be astonished to hear that there is a distinguished and experienced English ornithologist who has never seen a Grey Lag Goose, a species which flies over our houses about once a week. In winter we can see all the regular geese, and there can now be few Scottish bird-watchers who have not also seen a Snow Goose or Lesser Whitefront. Ducks, sea birds and birds of prey are much more numerous than in England: English "list-makers" are proud of themselves if they see a hundred species before the first summer visitors arrive in March, but their Scottish rivals can make their century in a winter week, or even a winter week-end. This winter Waxwings have already been noted in several places, Great Grey Shrikes appear to be numerous, and many members of the S.O.C. have seen a single Rough-legged Buzzard. A report of Lady Chatterley's Plover from Aberlady is unconfirmed, but we nevertheless wish all members of the S.O.C. a successful winter's bird-watching.

## REVIEW

KENNETH WILLIAMSON and J. MORTON BOYD: "St Kilda Summer." London 1960. Hutchinson. pp. 224. Photographs and line drawings. 25/-.

All the outliers of the Outer Hebrides, from North Rona to Rockall, are possessed of a certain charm for the naturalist by virtue of their remoteness and wealth of wild life. Of them all, the best known is St Kilda and, while it cannot be said

that naturalists have flocked there, at least there has been a steady trickle of Fortunates over the years.

Access became more difficult with the evacuation in 1930 and consequent cessation of regular sailings and for 27 years St Kilda lay uninhabited and relatively seldom visited. In 1957 St Kilda again became news, when an R.A.F. task-force went out to set up a radar installation. With this party went the authors of this book, representing the interests of the National Trust for Scotland, who own the island, and the Nature Conservancy, to whom it was leased. How these interests could have clashed with those of the Rocket Age is demonstrated in the early chapters, and a lively account is given of how the present situation, satisfactory to both, was achieved.

This volume is more than the narrative of the activities of mid-20th Century Man on the island, however: there are chapters dealing ably with the problematical history of the civilisation which existed almost unchronicled for over a thousand years, with the well-known forms of Wren, Field Mouse and Sheep peculiar to the island, and with the resident, migrant and vagrant birds. It is enlivened with accounts of often hazardous but always profitable landings on the other stacs and islands which, together with the main island of Hirta, make up the St Kilda group.

Over all, the authors are to be congratulated on producing a well balanced story of St Kilda as it is to-day and as it was in days gone by. Written in an easy style and well illustrated with black-and-white plates and line sketches, it is worthy of a place on any naturalist's bookshelf.

Throughout even the most factual chapters there runs the thread of the spell which St Kilda casts over those who visit it; a spell proof even against Bailey bridges, oil drums and Nissen huts. It is a spell which is almost tangible as I write these words perched 1,100 feet up on the shoulder of Conachair watching the evening sun slanting across the quiet meadows of Village Bay as we draw towards the end of yet another St Kilda Summer.

D. E. B.

#### CORRIGENDA

*Antea* 1:260. The asterisk against the word "Teal" should be omitted: Dr Morton Boyd informs us that R. Atkinson saw a Teal on North Rona in 1936 (*Island Going* p. 96), so this is not a new species for the island.

*Antea* 1:280, eight lines from bottom. For "early June" read "early July."

# A COMPARISON OF "DRIFT-MIGRATION" AT FAIR ISLE, THE ISLE OF MAY AND SPURN POINT

BY

**David Lack**

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## *Introduction*

After my analysis of "drift-migration" into eastern England in autumn (Lack 1960a), various persons pressed me to make a similar analysis for Fair Isle, especially because Williamson's theory of drift-migration was developed with primary reference to this island (Williamson 1952, 1955, 1960 etc.). The present paper shows that the methods which proved fruitful for eastern England in autumn were not nearly so productive further north, primarily, I think, because the weather is much more variable around Fair Isle than in the southern North Sea, so that broad tabulations of the number of arrivals in different types of weather involve a deceptive over-simplification when applied to Fair Isle. Nevertheless, the broad picture presented here will, I hope, supplement the detailed analyses of particular drift-arrivals given by K. Williamson and P. Davis in successive numbers of the "Fair Isle Bird Observatory Bulletin." To save space, full knowledge of my earlier paper on "drift-migration" into eastern England is assumed, including the summary of views on migrational drift, and also my reasons for the methods of analysis there used. My aim being to make the present paper as comparable as possible, I have used closely similar methods of analysis, and have not repeated my reasons for them here except where differences were introduced.

I am extremely grateful to the Fair Isle Bird Observatory Trust, founded by George Waterston, for permission to analyse the Fair Isle data, which from 1948 to 1956 were collected by the pioneering efforts of the first warden, K. Williamson, and subsequently by his successor, P.E. Davis, helped by numerous amateur visitors. I am similarly grateful to the Isle of May Observatory and W. J. Eggeling and to Spurn Point Observatory and R. Chislett. I am also extremely grateful to all of these workers, also to W. R. P. Bourne, R. E. Moreau and M. T. Myres of the Edward Grey Institute and to R. C. Homes, for their valuable criticisms of an earlier draft of this paper.

Fair Isle was manned every day in August, September and October 1948-59 inclusive, except from 22 to 31 October 1952

and 13 to 31 October 1953, and it was also manned every day in May 1949-60 inclusive, but I had to omit 1st May 1953 because no record was available for the previous day. Fair Isle was manned much less often in April, and since no big drift-arrivals were recorded in this month, it has been omitted from my study. The Isle of May was manned during most of the same periods as Fair Isle, but with occasional gaps in most years, so that I have not made a full analysis for this island. Spurn Point was manned almost every day during the autumns of 1949-59 inclusive, analysed in the earlier paper, but there were occasional gaps in May in most of the years between 1949 and 1959.

This paper, like the earlier one, is concerned with the typical "drift-migrants," i.e. the night-migrant chats, warblers and flycatchers. But one of the commonest chats, the Wheatear *Oenanthe oenanthe*, had to be excluded, because on Fair Isle there was possible confusion between British, Scandinavian, Icelandic and Greenland birds, and this paper is essentially concerned with birds migrating between Scandinavia and southern Europe or Africa. As in the earlier paper, the number of arrivals each day was assessed as the number of each species present in excess of the number on the previous day, or the day before that, whichever was the greater. This figure will have been too low when birds stayed only briefly, while particularly on Fair Isle, with its extensive cliffs, migrants will sometimes have been first recorded a day or two after they actually arrived.

#### *Average Totals at Fair Isle*

The average number of arrivals of each common species on Fair Isle each autumn and each May is shown in Table 1. The sparse but almost regular species are listed in note (i) to this table, while note (ii) shows the effect on the spring figures of including the available data for April. The number of arrivals varied greatly in different years, as shown by the smallest and largest annual totals, placed in brackets after the averages. These marked variations were due primarily to a few large and sporadic arrivals, which once in September 1956 and once in September 1957 included over a thousand birds of the species studied here, a total not otherwise exceeded in the course of a whole autumn. Likewise an arrival in May 1960 included over three hundred birds, a total exceeded for the whole of May in only one other year. Table 1 also shows that the number of Redstarts varied in different autumns between 4 and over a thousand, and in different Mays between 0 and over three hundred, and similar variations occurred in all other species.

Hence the averages in Table 1 mean little. But they at least



show the excessively small totals involved, on an average little more than six hundred birds each autumn and two hundred each May, with far fewer in some seasons. In only two species, Redstart and Willow Warbler, did the average exceed a hundred per autumn, and one per day in May, and only one other species at each season, the Whinchat in autumn and the Whitethroat in May, approached even these small totals. Hence it is misleading to term Fair Isle "the British Heligoland," for in autumn many of the same species are numerous on Heligoland at times. This conforms with the view that Heligoland is regularly crossed by Scandinavian night-migrants, while Fair Isle is not. Both islands, however, agree in having a fantastic list of rarities.

The arrivals of thrushes *Turdus* spp. on Fair Isle have not been analysed in this paper, but the autumn totals are worth mention. Adding the average for September and October, based on ten seasons of observation, to the average for November based on three seasons of observation, the average for the autumn on Fair Isle works out at about 1800 Fieldfares *T. pilaris*, about 4000 Redwings *T. musicus*, mainly Scandinavian but many Icelandic, about 1400 Blackbirds *T. merula*, about 100 Song Thrushes *T. ericetorum* and 5 Ring Ousels *T. torquatus*. Hence on Fair Isle, the Fieldfare, Scandinavian Redwing and Blackbird have been well over ten times as numerous in autumn as any species of warbler, flycatcher or chat (omitting the Wheatear). Their much greater abundance suggests that Scandinavian Fieldfares, Redwings and Blackbirds pass much nearer to Fair Isle on their way to Scotland than do the Scandinavian chats, warblers and flycatchers, also Song Thrushes and Ring Ousels, on their way to southern Europe or Africa, as I suggested earlier from other evidence (Lack 1959 pp. 382-3).

#### *Comparison between spring and autumn totals*

Table 1 shows that the average total for all species in May was just over one-third of that in autumn, and note (ii) suggests that the proportion would not be appreciably raised by adding the figures for April, though the latter are based on too few years to be sure. It does not, of course, follow from this that nearly two-thirds of the migrants passing Fair Isle in autumn have died by the following spring, since the circumstances favouring arrivals might well differ at the two seasons. The latter view is supported by Table 2, which shows that at Spurn, the average number of migrants in May is about one-sixth of that in the autumn, i.e. half of what it is at Fair Isle.

Table 1 shows that, on Fair Isle, most species have been between two and eight times as common in autumn as spring, the latter figure being reached in the Garden Warbler, with

an average of 28 in autumn and almost 3.5 in spring. The Goldcrest appears to have been proportionately far commoner in autumn than spring, but in spring it passes mainly before May, and it may be merely by chance that as yet no big arrival of this species has been recorded there in April. Three species that are rare everywhere in Britain, the Barred and Yellow-browed Warblers and the Red-breasted Flycatcher, are sparse but almost regular on Fair Isle in autumn, but totally absent in spring; nearly all the truly rare species have occurred in autumn, not spring.

Seven species, notably Sedge Warbler and Common White-throat, also Black Redstart, Stonechat, Lesser Whitethroat, Grasshopper Warbler and Spotted Flycatcher, differ from the rest in being less uncommon on Fair Isle in spring than autumn. In five of these species, the breeding range does not extend north beyond southern Scandinavia, and this also holds for the Sedge Warbler, apart from its reappearance in the extreme north of Scandinavia, while in the Spotted Flycatcher, which is more widespread, the Scandinavian population (unlike the German) migrates southeast in autumn (Creutz 1941), so is unlikely to occur on Fair Isle at this season. In contrast, nearly all the other common migrants in Table 1 breed well north in Scandinavia and migrate southwest in autumn. Probably species of the latter type are as likely to be displaced to Fair Isle in autumn as spring, but birds breeding only in Scotland or on the Continent to the southeast of Fair Isle are much less likely to be displaced there in autumn than in spring, since in autumn they are heading southward, whereas in spring they are heading northward, and "overshooting" with a following wind is a well-known phenomenon in spring in western Europe and North America. This suggestion was earlier made by Davis (1960) to account for the much more frequent occurrence of the Stonechat on Fair Isle in spring, chiefly in March, than in autumn, and also in connection with various other species.

#### *Comparison with Spurn Point and Isle of May*

Spurn Point in Yorkshire lies some 420 miles south of Fair Isle. Precise comparison between the numbers at the two observatories may be misleading since Spurn Point is a low-lying headland attached to the mainland, whereas Fair Isle is a high and isolated island, so presumably attracts a greater proportion of the passing migrants. Further, the total number of migrants present is more easily assessed on Spurn Point than on the rocky cliff-bound Fair Isle. Finally, an important fraction of the migrants on Spurn Point in autumn probably consists of departing British summer residents and not "drift-migrants" from Scandinavia (Lack 1960a), but such probable

British departures were excluded from the present comparison, as explained in note (ii) to Table 2.

Table 2, which refers to the same dates at both observatories, shows that the migrants at both observatories consisted of the same species in, for the most part, very similar numbers. The total number of all species was rather greater in autumn at Spurn than Fair Isle, but the reverse applied in spring. Most of the apparent differences in the average numbers of particular species at the two observatories can be attributed to the random influence of a few big arrivals, notably of Redstarts on Fair Isle in September, and of Robins and Goldcrests at Spurn in October. But a few species resident in England in summer, notably the Stonechat, Sedge Warbler and Whitethroat, were commoner at Spurn than Fair Isle in autumn, while two sparse northern species, the Bluethroat and Yellow-browed Warbler, occurred more often on Fair Isle than at Spurn. At Spurn, like Fair Isle, most species were commoner in autumn than spring, with the same main exceptions, since the Sedge Warbler and Whitethroat were commoner at Spurn in spring than autumn, while the Lesser Whitethroat, Grasshopper Warbler (very sparse) and Spotted Flycatcher have been about equally frequent at the two seasons. (The Stonechat and Black Redstart were seemingly commoner in autumn than spring at Spurn, but Table 2 does not include much of their times of passage).

The number of days with an arrival of at least 50 warblers, flycatchers and chats (omitting the Wheatear) was, in the autumns covered in Table 2, 20 at Spurn but only 11 at Fair Isle. On the other hand, in the months of May covered in Table 2, there was only one such arrival at Spurn, but 8 on Fair Isle; however, if arrivals of 47-49 birds had been included, and if allowance were made for the days missed at Spurn, there were 4 at Spurn and 9 on Fair Isle, which is probably a truer comparison. Although the total number of migrants in autumn was greater at Spurn than on Fair Isle, the number of rarities was much greater on Fair Isle. In addition to the 19 regular or almost regular species listed in Table 2, and also the Wheatear, 15 occasional or rare species of warblers and chats occurred on Fair Isle, but only 6 at Spurn, in the autumns reviewed here.

The Isle of May lies almost half-way between Fair Isle and Spurn Point. As it is an island, but at the mouth of the Firth of Forth, the proportion of passing migrants attracted is probably lower than at Fair Isle but higher than at Spurn; the terrain probably makes observation easier than at Fair Isle, though harder than at Spurn. Comparing all days on which both observatories were manned, there were at both seasons more arrivals of at least 50 migrants on the Isle of May than on

Fair Isle, 17 as compared with 10 in autumn, 18 as compared with 11 in May. The corresponding figures for the Isle of May compared with Spurn Point were 17 to 11 in autumn and 17 to about 4 in May, (by chance, the Isle of May was not manned on quite a number of the days in autumn when over 50 migrants arrived at Spurn Point). These comparisons indicate that, for the species studied in this paper, the Isle of May is the most favoured of the three observatories in both autumn and spring; though even on the Isle of May the numbers are negligible compared with the Scandinavian migrations from which the birds concerned are presumably drawn.

#### *Weather factors analysed*

The influence of the weather was analysed primarily with respect to the migrants arriving on Fair Isle, as this observatory provided the fullest record. Analysis was restricted to the years from 1950 onwards, as before this the British Daily Weather Charts were not sufficiently detailed for northern Europe. In autumn, the period selected was between 19th August and 14th October inclusive, as no sizeable arrivals were recorded outside these dates (except as specified in note (i) to Table 4).

Wind-directions, as in the earlier paper, were assessed from the isobars on the Daily Weather Charts. In autumn I used those for the sea east of Fair Isle, at 06.00 hours because K. Williamson informs me that in autumn most migrants arrive on Fair Isle early in the morning. In May I used those in the sea south and somewhat east of Fair Isle, at 12.00 hours because P. E. Davis informs me that in May many migrants arrive around midday. It may be added that these times of day gave a slightly better fit between arrivals and south-easterly winds than did earlier or later times of day. The wind-speed was taken as that recorded in the Daily Aerological Reports at 900 m. above Lerwick, 40 miles north of Fair Isle and the nearest meteorological station to it. For overcast, I used the readings at Lerwick in the British Daily Reports, at 06.00 and 12.00 hours each day in autumn, and at these times and 18.00 hours in May. As in the earlier paper, I scored full overcast as present when 8/8th cloud, fog, mist or rain were recorded at the selected times, and otherwise as absent; the objections to this method were discussed in the earlier paper. In May, wind-directions were also assessed from the isobars east of the Isle of May, while overcast was noted at Leuchars in Fife, the nearest meteorological station to the Isle of May, the readings being for the same times of day as at Fair Isle.

If most Scandinavian "drift-migrants" reach Fair Isle by lateral displacement, as I concluded in the earlier paper for eastern England, then in autumn they probably set out on

the previous evening from mid-Norway some 400-500 miles to the northeast of Fair Isle, between about latitudes 62° and 65° N., while in May they were probably near that part of France bordering the eastern part of the English Channel on the previous evening. But if, as postulated by Williamson (1952, 1955, 1960), most such migrants reach Fair Isle by a flight directed down-wind, since nearly all of them arrived with a southeasterly wind, they probably came from the Skagerrak, some 400 miles to the southeast of Fair Isle. Hence to examine the possible influence of the weather at the place of departure, one has to make a provisional decision between these two views. So far as I can judge, however, a firm decision is not possible on the basis of the available data from Fair Isle, due partly to the sporadic nature of the few sizeable arrivals, and partly to the changeable weather, which has to be assessed over the sea from records at distant land stations. Since, however, the chief aim of this paper is to provide a comparison with the earlier results from eastern England, I have here tabulated the weather data on the same assumption of lateral displacement, so have used for the autumn the figures for the previous evening in mid-Norway, and in May those for the eastern side of the English Channel. I would stress that this is to see whether the trends found in eastern England hold for Fair Isle, and not because the method by which the "drift-migrants" reach Fair Isle can be certainly established.

Wind-directions, wind-speed at the surface, and overcast, in mid-Norway in autumn and round the eastern side of the English Channel in May, have been assessed from the Daily Weather Charts. So was the general weather situation, which whenever possible was classified as either anticyclonic (A), or disturbed (D) owing to the presence of a depression or front, with transitional (T) for intermediate situations, but the last category was used as little as possible, though necessarily more than in the earlier paper.

As already mentioned, the weather tends to be much more disturbed around Fair Isle than in the southern North Sea, and more disturbed in autumn in mid-Norway than southern Norway. Further, the sea-areas crossed by most migrants reaching Fair Isle in autumn are further from meteorological stations than the sea-areas crossed by migrants reaching eastern England in autumn. For these reasons, the weather summaries in Tables 3-10 are probably much less reliable than the similar tables in the earlier paper for eastern England in autumn. Provided that this limitation is kept in mind, however, it may be helpful to see what a broad classification of arrivals in different types of weather may show. This summary refers to only a few of the possible weather factors whose influence might have been examined, but Tables 3 and 8 give the dates

of all big arrivals should the reader wish to test for others.

*Arrivals of over 50 birds in autumn*

In the autumns of 1948 to 1959 inclusive, there were 14 arrivals of over 50 chats, warblers and flycatchers on Fair Isle, 4 of them in 1951, 3 in 1959, 2 in 1956 and 1957, one in 1950, 1953, and 1958, and none in the other five seasons. Although arrivals of this size occurred on only 14 days, the birds coming on them comprised 63% of all recorded on Fair Isle in the twelve autumns, which once more emphasizes the fortuitous nature of the average figures. Some details have been set out in Table 3, together with the arrivals of over 50 birds on the Isle of May in the same period, but the weather data refer only to Fair Isle. This table may be compared with Table II for eastern England in the earlier paper.

Of the 14 such arrivals on Fair Isle, 6 occurred with anticyclonic weather in mid-Norway, and 8 with what I classified as transitional weather there. Of the 17 such arrivals on the Isle of May, 10 occurred with anticyclonic weather and 7 with transitional weather 400 miles to the northeast (*i.e.* somewhat south of the area selected for Fair Isle migrants). The corresponding figures for arrivals in eastern England averaging 50 birds were 18 with anticyclonic and one with transitional weather in southern Norway; while including those with at least 50 birds at one observatory but a lower average, they were 31 with anticyclonic and 4 with transitional weather. Hence the proportion of arrivals with anticyclonic weather 400 miles to the northeast was markedly lower for Fair Isle than for eastern England, with the Isle of May intermediate. On my system of classification, transitional weather was proportionately commoner further north, which doubtless had much to do with this difference. The most important point is that no arrival of over 50 birds occurred at any of the observatories in question with disturbed weather 400 miles to the northeast. Probably this is mainly because small passerine night-migrants do not normally set out from Norway in autumn in disturbed weather, though weather of this type usually means westerly winds, and hence no westward drift, further south.

It was found in the earlier paper that arrivals of over 50 birds in eastern England were not significantly influenced by the weather in Norway on the five days previous to the day in question and that, in particular, they did not come especially on the first fine day after a disturbed spell. The same lack of correlation with the previous weather applied to the 14 arrivals of over 50 birds on Fair Isle, for which the weather in mid-Norway on the preceding five nights was usually transitional, sometimes settled, occasionally disturbed, and sometimes mixed.

The wind in mid-Norway on the night before these arrivals on Fair Isle was normally light or moderate, the average for the surface-wind at the coastal stations being 13-15 knots on 4 nights and 10 knots or less on the other 10 nights. A similar correlation with light winds in Norway was found for arrivals in eastern England in autumn. The same point was earlier stressed by Williamson (1955, also 1960), and I differ from him only in thinking that other weather factors are also important in initiating migration (Lack 1960b).

The wind in mid-Norway prior to an arrival of over 50 birds on Fair Isle was N.E. on 3 nights, S.E. on 4, S.W. on 5 (on all of which it was S.E. somewhat further south, as indicated in brackets in Table 3). S.S.W. throughout on one, and very light southerly on one. Similarly, the wind was easterly, usually S.E., rather further south in Norway on the night before 13 of the 17 arrivals of over 50 birds on the Isle of May, and in south Norway before 31 of the 35 arrivals of over 50 birds in eastern England.

Table 3 fully supports Williamson that most arrivals on Fair Isle occur with a S.E. wind over the island. This held unequivocally for 7 of the 14 arrivals in Table 3. Further, for the arrival on 21st August 1950 the wind was S.E. during the night though S.W. by 06.00 hours, on 1st September 1951 it was S.W. round Fair Isle itself but S.E. in part of the sea-area between Fair Isle and mid-Norway, on 31st August 1953 it was S.E. during the night, N.W. in the morning, but S.E. again by 18.00 hours, on 4th September 1956 it was N.E. at 06.00 hours but S.E. by noon, and on 20th September 1957 it was N.E. at 06.00 hours but E. by noon. Hence for 12 of the 14 arrivals in Table 3, the wind was S.E., or once E., *i.e.* blowing across the presumed track of migrants heading south from mid-Norway, for at least part of the day or part of the track concerned.

The two apparent exceptions, to judge from the weather maps, were the arrivals of Robins with, respectively, a very light southerly wind, and a moderate S.S.W. wind, on 13th and 14th October 1959, but P. E. Davis informs me that on the 13th the wind was light easterly for most of the day, and on the 14th moderate to fresh S.E. at Fair Isle itself. Hence these two arrivals were not so exceptional as the weather maps suggest.

Similarly, 13 of the 17 arrivals of over 50 birds on the Isle of May occurred with a S.E. wind in the morning, while for one other the isobars indicated a S.W. wind but it was recorded as S.E. at the surface, and for another it was S.W. off-shore in the morning but E. further north, and S.E. off-shore by 18.00 hours; the other two arrivals came with a N.E. wind. Similarly of the 35 arrivals of at least 50 birds in eastern England, 29 occurred with a wind between E. and S.E. in the southern

North Sea; the few exceptions were discussed in the earlier paper.

On the three occasions in Table 3 with an arrival of over 50 birds on Fair Isle but a negligible one on the Isle of May, the wind was S.E. for at least part of the day off Fair Isle but westerly off the Isle of May. However, for the 10 days with an arrival of over 50 birds on the Isle of May but a small or negligible one on Fair Isle, there seemed to be no corresponding difference in wind-direction. On about half the days with an arrival of over 50 birds at either Fair Isle or Spurn Point, but not both, the wind was easterly off the observatory receiving the arrival but westerly off the other, but this did not hold for the other half.

Full overcast was recorded at Lerwick on 10 of the 14 mornings with an arrival of over 50 birds on Fair Isle. It was not recorded at 06.00 hours or noon for three arrivals of 50-71 birds, nor for one of the two outstanding arrivals, that of 20th September 1957, for which Davis (1958) noted that on Fair Isle "the weather was fine and clear throughout this 'great rush'." Full overcast was recorded at Leuchars for 13 of the 17 arrivals of over 50 birds on the Isle of May. But it was recorded round the southern North Sea for only 17 of the 35 arrivals of over 50 birds in eastern England, a difference that perhaps reflects a greater prevalence of full overcast in northern than southern waters in September.

#### *Influence of weather on autumn arrivals*

To allow for points such as that raised in the last sentence, it is essential to analyse the weather on all the days covered by this study, and not merely on the few with arrivals of over 50 birds, and the arrivals at Fair Isle were used for this purpose. Table 4 provides a broad summary on the same lines as Table III in the earlier paper for eastern England (Lack 1960a). Comparison of the two tables shows that whereas in eastern England nearly all arrivals of over 50 birds and many of 20-49 birds occurred with anticyclonic weather to the north and east winds throughout the presumptive journey of the migrants (type 1), at Fair Isle this type of weather was apparently less favoured than some others. This may not have been true, however, since four days with big arrivals on Fair Isle and a S.W. wind in mid-Norway, but a S.E. wind rather further south, were doubtfully classified under type 4 weather. There was almost as good a case for classifying them under type 1, which would have greatly raised the average for type 1 weather and reduced that for type 4. Even so, transitional weather with easterly winds (type 7) was proportionately much more favoured at Fair Isle than in eastern England, as already noted in the last section. In Table 4, the high average



number of arrivals for type 2, and especially for type 6, were based on too few days to be trustworthy.

Comparison of Table 4 with the corresponding table for eastern England also shows that, with westerly winds throughout the presumptive journey, arrivals of 10 or more birds were much rarer on Fair Isle than in eastern England, suggesting that westward drift is essential for a sizeable arrival on Fair Isle, but not in eastern England. (An arrival of over 50 birds on Fair Isle on 1st September 1951, rated as with westerly winds both in Norway and off Fair Isle in Table 4, is deceptive since there was a S.E. wind in between).

Table 4 also shows that 1-9 birds arrived on Fair Isle on just over half the days studied. While migrants sometimes elude discovery on the cliffs or elsewhere, small increases were so frequent, sometimes on consecutive days over long periods, that most of these must have been genuine arrivals. Moreover only a small proportion of them might perhaps have been redetermined movements from Shetland after previous drift, since there were very few big drift-arrivals, and it also seems unlikely that night-migrants starting from Shetland would often alight again after only some twenty miles. There therefore seems to be a thin trickle of Scandinavian migrants passing Fair Isle in autumn in all types of weather. No arrivals were recorded on just over one-third of the days concerned, on most of which the wind was westerly throughout, though on a few there were easterly winds off Fair Isle with anticyclonic or transitional weather in mid-Norway.

In Table 5, the wind-directions off Fair Isle have been analysed in greater detail. This shows that the proportion of days with an arrival of at least 20 birds was only 6 out of 371 (2%) with a wind between N.W. and S.W., 5 out of 45 (11%) with a N.E. wind, and 20 out of 91 (22%) with a S.E. wind. Including the data in the second half of the table for days on which the wind changed in direction between 06.00 and 12.00 hours, the figure for all occasions with a S.E. (or E.) wind for at least part of the day was 30 out of 121, or 25%. But while most birds arrived with a S.E. wind, there were 40 out of 91 (44%) other days with a S.E. wind on Fair Isle when at most only 2 birds arrived.

Much the same was found earlier for eastern England in autumn, and here the wind-speed was evidently critical, big arrivals occurring with a strong but not with a weak S.E. wind. This point has been tested in Table 6 for all days with a S.E. wind off Fair Isle at both 06.00 hours and noon, and suggests, though less clearly than for eastern England, that arrivals were fewer in light than moderate S.E. winds. On the basis of the figure for the wind around sunrise each day at 900 metres (3000 feet) above Lerwick, arrivals of at least

20 birds occurred on only 4 out of 30 days with a S.E. wind of less than 18 knots, but on 10 out of 30 days with a S.E. wind of 18-27 knots; the corresponding figures for arrivals of less than 10 birds were 22 out of 30 for light winds and only 14 out of 30 for moderate winds (see also Appendix Table 1, however, which suggests that for arrivals in the most favourable types of weather, wind-speed had little if any influence).

The general tendency for arrivals on Fair Isle to occur with a S.E. wind favours the idea of drift, but there were some puzzling exceptions. Three of these involved an arrival of over a hundred birds. I have already mentioned the big arrivals of Robins on 13th and 14th October 1959. The big arrival on 5th September 1956 was also puzzling, since though it occurred with an E.S.E. wind, the wind was extremely light. There had been a much bigger arrival on the previous day with a strong S.E. wind and rain and it may be suggested that the birds arriving on the 5th were likewise blown off course on the 4th, but did not make land till next day. There were also some puzzling arrivals of 30-49 birds, notably on 12th September 1950 in col conditions with an excessively light, if anything westerly, wind in the morning, and a moderate S.W. wind later, also on 21st August 1954 with a 10-knot N.E. wind, on 25th August 1954 with a 13-knot north wind (the wind being N.E. that night in mid-Norway), and on 31st August 1957 with a 3-knot wind from slightly north of east. I would stress, however, that these were the exceptions, and that most arrivals came with a moderate S.E. wind.

It may be added that four of the arrivals of over 50 birds on the Isle of May listed in Table 3 occurred with a wind of less than 6 knots in the morning at 900 m. above Leuchars, Fife, those of 24th August 1950, 18th September 1953 and 20th September 1957 with a S.E. wind, and that of 8th September 1956 with a N.E. wind. Of the 35 arrivals of at least 50 birds in eastern England, that of 20th September 1957 occurred with an exceedingly light easterly wind, two others with a S.E. wind of only 8 knots and three others with a N.E. wind of 5-9 knots. But such occurrences seem much less remarkable in eastern England, where some migrants probably pass without being drifted, than at Fair Isle or the Isle of May, where westward drift would seem essential for their occurrence.

#### *Certain sparse species*

In the earlier paper, I showed that in eastern England in autumn, Bluethroats occurred chiefly on days when other Scandinavian migrants arrived, and chiefly with S.E. winds, whereas Barred Warblers, Red-breasted Flycatchers, and

more doubtfully Icterine Warblers, occurred chiefly when few other migrants arrived, and in a variety of winds, including westerlies. The Icterine Warbler was too sparse on Fair Isle for a similar analysis, but the Yellow-browed Warbler could be added to the other three, the results for which are shown in Table 7. In interpreting this table, it should be kept in mind that an individual rarity can easily be overlooked for a day or two after its first arrival on Fair Isle, particularly if it arrives with many other birds or shelters on the cliffs. But this objection should apply as much to the Bluethroat as to the three other species, and Table 7 suggests a marked difference between them, of the same type as was found in eastern England.

Firstly, almost a quarter (24%) of the Bluethroats, but only 4% of the other three species, occurred on the 14 days with an arrival of at least 50 chats, warblers and flycatchers on Fair Isle. Secondly, 60% of the Bluethroats, but only 28% of the other three species, occurred on days with a S.E. wind off Fair Isle during the morning (including the days when it was N.E. for part of the time, but not those when it was westerly for part of the time). Thirdly, in the Bluethroat, as shown in Table 1, the ratio of spring to autumn arrivals was similar to those of most other autumn migrants, whereas the Barred Warbler, Yellow-browed Warbler and Red-breasted Flycatcher were never recorded in spring.

If, as these figures suggest, Bluethroats arrived on Fair Isle in similar conditions to the common migrants, then presumably the high proportion (26%) of Bluethroats first recorded with a westerly wind consisted in part of individuals that had arrived earlier with S.E. winds but had been overlooked, while a few others may have been on re-determined passage from Shetland. It is reasonable to suppose that these same two factors accounted for a similar proportion of the records of the other three rarities with westerly winds, but in these three species, the overall proportion first recorded with westerly winds was 48%, nearly double that for the Bluethroat. Since easterly winds are much less common than westerlies, more Barred Warblers, Yellow-browed Warblers and Red-breasted Flycatchers reached Fair Isle with easterly winds than would have been expected by chance, but the proportion first recorded with a westerly wind was much higher than in most species. Presumably, therefore, many of them arrived from the Continent with a westerly wind, *i.e.* not down-wind. It also seems safe to conclude that these three species are not "markers" of the place of origin of the main Scandinavian drift-arrivals.

#### *Discussion of autumn arrivals*

The data reviewed in the foregoing sections are far too in-

adequate for a full appraisal of the reasons why Scandinavian night-migrants sometimes arrive on Fair Isle in autumn. Firstly, the numbers involved are extremely small, indeed negligible compared with the numbers leaving Scandinavia, or with the numbers that can be seen when conditions are right on the Continent of Europe. Secondly, more than three-fifths of all those recorded on Fair Isle during the 12 autumns analysed here came on one of 14 irregularly distributed days. Thirdly, the weather often changes rapidly round Fair Isle and in Norway in autumn. Finally, the critical sea-area between Fair Isle and Norway is distant from land-based meteorological stations, so it is hard to assess the weather in it. For these reasons, it was perhaps to be expected that statistical correlations could not be established between the arrivals on Fair Isle and particular weather factors, except for the already well-known tendency for arrivals to occur with south-east-erly winds.

Most of the migrants that reach Fair Isle in autumn are presumably drawn from populations heading from Scandinavia in the direction of the Iberian peninsula, but since Fair Isle lies some 200 miles to the west of the most westerly line running directly between these two areas, the birds reaching it are evidently well off-course. For this reason, and because Fair Isle is twenty miles from land, it seems likely that at least most of the Scandinavian chats, warblers and flycatchers that come in sight of it in autumn alight there, *i.e.* that the insignificant numbers on Fair Isle mean an insignificant passage overhead. Further, the general paucity of arrivals, and their tendency to come with a southeasterly wind fully support Coward (1912) and later Williamson (1952, 1955, 1960), as against Clarke (1912), that the migrants in question do not have a regular route through Fair Isle, but occur there chiefly owing to westward "drift."

In my view, however, the available data from Fair Isle do not allow one to determine the nature of this drift, and in particular, they do not appear to provide critical or positive evidence in favour of Williamson's view of drift as a down-wind directed flight. Williamson put forward this theory at a time when it had not been shown that night-migrants can navigate by the stars, and he assumed, by analogy with certain diurnal migrants in Holland, that in autumn Scandinavian night-migrants reaching the west or south coast of Norway turn along it south and southeast, using it as a "guiding line" for navigation. When the migrants come to the Skagerrak, however, they are *ex hypothesi* forced to put out to sea, so here they are in danger of getting lost. Since the Skagerrak lies to the southeast of Fair Isle, and most Scandinavian migrants reach Fair Isle with a southeasterly

wind, it was reasonable, on this view, to conclude that they reach Fair Isle down-wind. But if it is accepted that night-migrants can navigate by the stars, they do not need the coast-line for navigation; and it has lately been shown by radar that small night-migrants leaving East Anglia S.S.E. at night in autumn do not, in fact, follow the coastline, but put out to sea on a broad front, as do the thrushes and other species leaving East Anglia eastward at night in spring (Lack 1959). It seems reasonable to suppose that the same holds in Norway, though the matter has not yet been tested there. (There is also the possibility, in my view remote, that while some of the night-migrants fly high out to sea on a broad front, others follow the coastline too low to be detected by radar). If Scandinavian night-migrants do not follow the west and south coasts of Norway as Williamson postulated, and if, instead, they put out to sea whenever their heading lies that way, then there is no need to postulate that most of the birds reaching Fair Isle started their drift in the area of the Skagerrak, and hence the basis for this argument in favour of down-wind arrival is greatly weakened.

Secondly, the frequent association of drift-arrivals with full overcast led Williamson to postulate that migrants over the sea reorient to fly down-wind when bad visibility prevents their following coastlines or navigating by the stars. But one of the two big arrivals on Fair Isle of the species studied here, that of 20th September 1957, in the season after Williamson left Fair Isle, occurred with fine and clear weather round the island, as did a few other arrivals of between fifty and a hundred birds. Further, the undoubted frequency of arrivals on Fair Isle and the Isle of May in autumn in full overcast might be at least partly incidental and due to the prevalence of overcast with easterly winds at this season. Dr G. V. T. Matthews informed me (*in litt.*) that at the Isle of May in September and October 1926-35 inclusive, the frequency of days with a visibility of 0-2 miles was 16.8% with a wind between N.E. and S.E. but only 3.3% with a wind between S.W. and N.W. Hence it is far from certain that "drift-arrivals" are correlated with full overcast as such, and one of the two big arrivals definitely occurred in its absence.

Thirdly, Williamson supposed that the rarities coming with the main drift-migrants were "markers" of where the drift originated, and since they included species like the Barred Warbler and Red-breasted Flycatcher, which breed to the east and southeast, but not to the northeast, of Fair Isle, this seemed to provide further support for a southeastern, and hence down-wind, origin. But the evidence given in the last section suggests that Barred Warblers and Red-breasted Flycatchers are not reliable "markers" of the main "drift-arriv-

als," and that they reach Fair Isle under rather different conditions.

I therefore consider that, while Williamson's theory was not unreasonable on the evidence available in 1952, three of the main points on which it rested are at least doubtful, and I have elsewhere raised certain more general objections to it (Lack 1959). Moreover on any view, and particularly on Williamson's, large numbers of Scandinavian night-migrants cross the Skagerrak, yet hardly any reach Fair Isle, which fits better with the view that Fair Isle receives the westernmost fringe of the Scandinavian departures than that, on the nights with full overcast and a southeasterly wind, the migrants crossing the Skagerrak are disoriented and then turn to fly down-wind, since on the latter view one might have expected many more at Fair Isle on occasional days. I conclude that there is, on present evidence, no need to accept Williamson's view, but that the Fair Isle data do not allow of its exclusion.

Radar observations in the southern North Sea have not as yet provided any evidence in favour of Williamson's view but have demonstrated two other types of "drift." Firstly, and normally, when migrants can see to navigate by the sun or stars, they maintain an oriented heading but do not allow for lateral displacement by a cross-wind. Secondly and rarely, when they meet fog or rain, they are disoriented and fly at random, which presumably means that they drift (not fly) down-wind at the speed of the wind (Lack 1958, 1959). Most Scandinavian "drift-migrants" to eastern England in autumn probably come by lateral displacement from their S.S.W. heading, while if disorientation in full overcast has any important influence, it is probably through delay rather than drift on the sea crossing, since fog usually occurs with light winds (Lack 1960a).

The birds reaching Fair Isle in autumn are mainly of the same species as in eastern England, so it is not unreasonable to suppose that their heading is likewise S.S.W.; moreover this is the bearing of Iberia from Norway. On this view, since Fair Isle lies 200 miles west of any line between Norway and Iberia, it is understandable that Scandinavian migrants should be scarce, and also that they should come mainly with southeasterly winds, for displacement will be greatest with a wind at right angles to the birds' heading. Hence while the data are inadequate, I suggest that they are not inconsistent with the view that most drift-arrivals to Fair Isle came either by the lateral displacement of birds heading S.S.W. or by the down-wind drift of birds disoriented in full overcast. The data do not, however, allow one to decide between these two methods, since any possible correlation between arrivals and full overcast near Fair Isle was inconclusive, and one is ignorant

of the extent of overcast in the seas north of Fair Isle, as they are distant from meteorological stations. Since in this area full overcast seems frequent with a strong southeasterly wind, it is possible that disoriented drift down-wind plays a larger part than in eastern England, but this is a guess. It is also possible that some of the drift-migrants came by a combination of both methods, being disoriented for part of their journey and resuming their southerly heading when they emerged from the overcast area.

One tends to assume that Scandinavian night-migrants landing by day on Fair Isle set out from Norway on the previous evening, on which view they flew for some 12-18 hours, and one would not expect them to be exhausted or seriously under-weight on arrival. On the basis of the size of the migratory fat deposits in relation to energy-consumption, Odum (1960) estimated that a long-distance small passerine night-migrant should have enough fat to fly continuously for 1750 miles (for 58 hours at 30 m.p.h.). This figure is based on the energy consumed by a hovering hummingbird, which might be more than that consumed by a migrant in level flight, so if anything the figure may be an underestimate. If it is even roughly correct, it suggests that long-distance migrants reaching Fair Isle badly under-weight set out, not on the previous evening, but two or three evenings before. Hence one may have to seek an explanation for the westward drift of some of the migrants in terms of the weather two or three days before they reached Fair Isle. Conceivably some under-weight birds might have reached Fair Isle solely by lateral displacement from an oriented heading, on the supposition that they flew continuously from north Norway with a strong southeasterly wind all the way. But it seems likely that most under-weight birds would have been drifted out to sea in full overcast for part of their journey, after which they might resume their southerly heading to bring them past Fair Isle. I suggested earlier that this was what might have happened on 5th September 1956.

While most arrivals on Fair Isle occurred with a moderate south-easterly wind, a few, as already mentioned, did not. If these arrivals were primarily due to events two or three days earlier, it is hard to be sure that one has examined the weather in the relevant area at the relevant time, while if the relevant area was the sea well north of Fair Isle, it might not have been possible to infer the weather there correctly from the records at distant land-stations. This gap in knowledge offers a loophole for difficult cases, but it is fairer to say that, while the evidence allows one to postulate lateral displacement or disoriented drift in south-easterly winds for most arrivals, a few sizeable arrivals are unexplained, and

seem extremely hard to explain, on this view.

Further observations are needed on the times of day at which the passerine night-migrants actually land on Fair Isle. This may be hard to establish when the birds seek cover on arrival and stay in it for a few hours before emerging to feed. Also, while many of the birds presumably arrive during the hours of daylight, others perhaps come during the night. One would expect the latter primarily on foggy nights on account of the attraction of the lighthouses in these conditions, since on other nights the birds would presumably be flying high and not attracted to the island. If this view is correct, then there may well be a correlation between some arrivals and fog at night round Fair Isle—a point that needs further study.

The foregoing discussion refers to nearly all the species mentioned in this paper, but not without modification to two groups. Firstly, the Fieldfare, Scandinavian Redwing and Blackbird occur in much larger numbers each autumn than the chats, warblers and flycatchers, so presumably pass much nearer to Fair Isle than the other species, as is reasonable if they cross on a broad front from Norway to Scotland on their way to British wintering grounds (Lack 1959). Presumably, a comparatively small westward displacement is needed to bring these three species of thrushes to Fair Isle. Secondly, the Barred Warbler, Yellow-browed Warbler and Red-breasted Flycatcher occur relatively more often with westerly winds and less often with south-easterly winds than the regular warblers and flycatchers, and they are also rare in big arrivals of the other species. I cannot suggest why their occurrences should be of this pattern, nor why these eastern birds should occur on Fair Isle as often as they do.

#### *Arrivals of over 50 birds in May*

Arrivals of over 50 birds in a day on Fair Isle and the Isle of May during the month of May are set out in Table 8. Note (ii) to Table 8 refers to the only big spring arrival so far recorded on Fair Isle in March or April, note (iii) gives the arrivals in May of 30-49 birds at both observatories, and note (iv) the few sizeable arrivals at Spurn Point in May. I have included all arrivals of at least 30 birds in the following discussion.

Table 8 and note (iii) show that in May, like the autumn, most arrivals of at least 30 birds occurred with a south-easterly wind, this holding for 14 out of 17 such arrivals on Fair Isle and for 21 out of 27 such arrivals on the Isle of May. It should be added that on a few of these days the wind was S.E. for only part of the time, having occasionally been S.W. in the first part of the morning, and once S.W. from noon onward. On the few other days with an arrival of over 30 birds,



the wind was almost due east once at Fair Isle and three times at the Isle of May, N.E. once at Fair Isle and twice at the Isle of May, and S.W. once at Isle of May. The last arrival on 5th May 1956, with a S.W. airstream over Britain, consisted of 10 Whinchats, 6 Redstarts and 49 Willow Warblers. As these three species breed commonly in Scotland, this was probably a northward movement of Scottish summer residents drifted somewhat eastward and precipitated by the frontal rain which passed over the Isle of May that day. Nearly all the other arrivals, both on the Isle of May and at Fair Isle, presumably consisted of Scandinavian summer residents drifted off course to the west by easterly winds, while a few individuals, as already discussed, may have been more southerly birds which overshot their breeding area with a partly following wind.

Table 8 shows that, on most occasions in May with an arrival of at least 30 birds on either Fair Isle or the Isle of May, there was a negligible arrival on the other. Differences in the direction of the wind off the two islands were evidently responsible for a few of these. Thus for one arrival of over 30 birds on Fair Isle but not the Isle of May, the wind was E. off Fair Isle but N.E. off the Isle of May, while for another it was S.E. for part of the day off Fair Isle but S.W. all day off the Isle of May. Again, of the arrivals of at least 30 birds on the Isle of May but not Fair Isle, five occurred with a S.E. or E. wind off the Isle of May but a N.E. wind off Fair Isle, one with a S.E. wind off the Isle of May but a S. wind off Fair Isle, two with a S.E. wind off the Isle of May but a S.W. wind off Fair Isle, and one with an E. wind off the Isle of May but a N.W. wind off Fair Isle (also one with a S.W. airstream throughout Britain, already discussed). However, for the other nine such arrivals on Fair Isle but not the Isle of May, and for the other 13 such arrivals on the Isle of May but not Fair Isle, the direction of the wind off the two islands was either similar, or did not differ in a way likely to cause the observed difference in arrivals.

In Table 8, I have also included the wind-direction in the southern North Sea off East Anglia at 06.00 hours each day. This was usually similar to that off the Isle of May at noon; when it differed, it seemed to make no difference to the number of arrivals, but the data are inadequate.

I have also included the general weather situation around the eastern side of the English Channel at midnight before the arrivals on Fair Isle and the Isle of May. Using the same terminology as before, this proved to be transitional on 24, disturbed on 10, and anticyclonic on 6 such occasions. However, the arrivals of over 30 birds were too sporadic for this to mean that the species concerned set off mainly in transi-

tional weather, and probably it means chiefly that, in the period studied, south-easterly winds were commonest off eastern Scotland when the situation in the Channel was transitional. It shows, however, that migrants sometimes set off in disturbed weather in spring, which was not found in autumn, and this fits with the evidence from other sources (Lack 1960b).

As regards full overcast, 8 of the 17 arrivals of at least 30 birds on Fair Isle occurred on days when full overcast was recorded at either 06.00, 12.00 or 18.00 hours at Lerwick, and 9 when it was not so recorded, which suggests that it had no influence. Again, of the 26 arrivals of at least 30 birds at the Isle of May with easterly winds, 18 occurred when full overcast was recorded at Leuchars and 8 when it was not; but this is close to the proportion expected on a random distribution, since at Leuchars with easterly winds in the months of May studied, full overcast was recorded on twice as many days as it was not. (The one arrival at the Isle of May with a south-westerly wind may have been precipitated by frontal rain, as already mentioned).

#### *Influence of weather on arrivals at Fair Isle in May*

In May, as in the autumn, the possible influence of the weather on arrivals needs to be analysed for all days, and not merely for the few with arrivals of over 30 birds. Table 9 gives the number of days with arrivals of each size on Fair Isle, in terms of the wind just south of Fair Isle and also 200 miles further south, off the Isle of May. This shows that four-fifths (36 out of 45) of all the arrivals of at least 10 birds on Fair Isle occurred with a S.E. wind at noon in at least part of the sea-area studied. Further, the mean number of arrivals per day with a S.E. wind off both Fair Isle and the Isle of May was 26, while with a S.E. wind off one but not the other (types iii, v) it was 16. On the other hand, with a N.E. wind off both islands it was only 2 and with a westerly wind off both islands it was only 1.

Differences in the prevailing wind were largely responsible for the marked differences in the total number of migrants recorded each year in May. In particular, only 50 warblers, flycatchers and chats (omitting the Wheatear) were recorded on Fair Isle in the whole of May 1956, when the wind was westerly almost throughout the month, and 14 of these birds came on one day, 24th May, when the wind was S.E. for the morning only.

Although arrivals in May were strongly favoured by a S.E. wind, Table 9 shows that, as in the autumn, there were other days with a S.E. wind but few or no arrivals. In Table 10, the possible influence of the speed of the wind has been investi-

gated for the 62 days with a S.E. wind off both Fair Isle and the Isle of May, and it suggests that, as in autumn, big or moderate arrivals occurred chiefly with fairly strong S.E. winds, and not with light winds from this direction. As in the autumn, however, some arrivals occurred with a very light wind, including four of over 50 birds on Fair Isle, included in Table 8, which, as it happened, were not among the 62 days with general S.E. winds analysed in Table 10. The days in question were 8th May 1950, 5th May 1954, 4th May 1955 (when the wind was light S.W. for most of the day but changed to light S.E. in the late afternoon), and 28th May 1955. On all four days, the arrivals included characteristic Scandinavian migrants such as Robins, Bluethroats or Pied Flycatchers, so they were presumably birds on passage to Scandinavia, and though in three of the four instances there had been S.E. winds during part of the preceding few days, I think that they were probably too large to have been derived from re-determined movements of birds drifted earlier to Scotland that were heading back to Norway. Table 8 shows that there were also three arrivals of at least 50 birds on the Isle of May with a very light S.E. wind, on 5th May 1952, 8th May 1953 and 13th May 1959, while on 25th May 1959 the wind was an extremely light easterly.

The 62 days with S.E. winds off both Fair Isle and the Isle of May can also be used to test the possible influence of full overcast, as in the upper part of Appendix Table 2. This is inconclusive, but suggests that full overcast, at least as recorded at Lerwick, had little if any influence. The lower half of this table shows that, provided the analysis is restricted to days with general S.E. winds, the weather situation on the previous night on the easterly side of the English Channel also had little if any influence. Arrivals appeared to be slightly sparser with disturbed than with transitional weather, as might be expected, but the comparative paucity with anti-cyclonic weather may merely have been due to the accompanying light winds in the North Sea.

#### *Discussion of arrivals in May*

Almost all the comments made in discussing the autumn findings apply equally to the spring, in particular the difficulty of establishing correlations when arrivals are sparse and irregular and the weather is changeable and, in large areas, unrecorded. The paucity of migrants and their occurrence chiefly with south-easterly winds indicate that in May, as in the autumn, they come mainly through drift, though in May some are evidently birds carried beyond their breeding area by a following wind. The correlation with south-easterly winds was, if anything, stronger in May than in the autumn,

but perhaps merely because the weather is more stable in May, so that the tabulated weather data were more accurate. Full overcast near Fair Isle was associated with proportionately fewer of the arrivals in May than in the autumn, which perhaps means that it had little or no influence, and that most if not all the migrants arrived by lateral displacement from an oriented heading, but this is far from certain.

The anomalies, or apparent anomalies, in May were similar to those in the autumn. A few arrivals of over 50 birds at either Fair Isle or the Isle of May occurred with an extremely light south-easterly wind, and one of 31 birds on Fair Isle and two of 52 and 227 birds on the Isle of May with a N.E. wind (of 12-14 knots). Also most arrivals of any size on Fair Isle occurred on days when hardly any birds arrived on the Isle of May, and conversely, and on most of these days the difference was not associated with a difference in wind-direction over the two islands. Finally there were many days with a moderate or strong south-easterly wind and no appreciable arrival at either observatory.

Occasional big arrivals with a light south-easterly wind, or with a north-easterly wind, also marked differences in the number of arrivals on the same day at adjacent observatories, and days with a south-easterly wind but no appreciable arrival, were likewise found at Cley, Gibraltar Point and Spurn Point observatories in autumn (Lack 1960a). But Scandinavian migrants evidently pass fairly regularly over eastern England in autumn even without westward displacement, and such occurrences here seem most readily explained through marked variations, in the proportion of passing birds that alight at the coast. On the other hand, there is every reason to think that Scandinavian chats, warblers and flycatchers do not usually reach Fair Isle or the Isle of May in spring or autumn unless drifted westward, and it also seems likely that, when they reach these islands, they normally alight. Hence though one is reluctant to adopt a different explanation for similar occurrences in two areas, it is unlikely that the primary factor at Fair Isle is variation in the proportion of passing migrants that alight. I suggest, instead, that at least some of the apparent anomalies may be due merely to ignorance, both of the track of the migrants before they reached Fair Isle and of the weather in sea-areas far from land, and that had more been known, the influence of drift by south-easterly winds might have been apparent. But as stressed for the autumn, such a possible loophole is dangerous, and there may be other as yet unknown factors involved.

Finally, it should be kept in mind that the "drift-migrants" to Fair Isle and the Isle of May constitute a minute fraction of the migrations of the species concerned and this, coupled

with the sporadic nature of the few arrivals, and ignorance of the weather at sea far from land, provide the chief reasons why the conclusions reached are so indecisive. Nor do I think it likely that more extended records of the same nature, even for twice as many years, will suffice. However, the combination of such records with radar observations has great possibilities, and one object of this paper is to provide a background for such studies.

### *Summary*

1. An average of rather over 600 chats, warblers and flycatchers (mainly Scandinavian) landed on Fair Isle each autumn, and an average of rather over 200 each May, the number varying greatly in different years. Over 50 birds arrived on one day 14 times in 12 successive autumns, and 12 times in 12 successive months of May.

2. Arrivals of over 50 birds in a day were twice as frequent on the Isle of May as on Fair Isle at both seasons, while on Spurn Point they were twice as frequent as on Fair Isle in autumn, but far scarcer in May.

3. Big arrivals were so sporadic, the weather was so changeable, and the weather data for the critical sea-areas were so incomplete, that it was hard to establish any certain correlations between arrivals and particular weather factors.

4. At both seasons, however, most arrivals came with a moderate or strong S.E. wind, so were presumably due to drift, but while Williamson's view of drift as a reoriented down-wind flight seems unlikely, it was not possible to determine whether the lateral displacement of oriented birds or the down-wind drift of disoriented birds was the more important.

5. At both seasons there were a few arrivals with extremely light south-easterly winds, or with a N.E. wind. There was often a big arrival at Fair Isle but not the Isle of May, or conversely, and there were many days with a S.E. wind and no arrival at either. Most of these anomalies have not been explained.

6. Fieldfare, Redwing and Blackbird were comparatively numerous on Fair Isle in autumn, presumably because they pass regularly close to the island.

7. In autumn Barred Warbler, Yellow-browed Warbler and Red-breasted Flycatcher rarely occurred with big arrivals of other drift-migrants. They did not occur in spring and were relatively more frequent with westerly winds.

TABLE 1.—Annual totals at Fair Isle in autumn and spring

	10th Aug. - 31st Oct. (1948-59)		May (1949-60)	
	Mean	Limits	Mean	Limits
TOTAL	636	(161-2428)	239	(50-699)
Whinchat ( <i>Saxicola rubetra</i> )	82	(6-513)	18	(2-52)
Redstart ( <i>Phoenicurus phoenicurus</i> )	190	(4-1103)	49	(0-310)
Black Redstart ( <i>Phoenicurus ochruros</i> )	0.7	(0-2)	2	(0-8)
Bluethroat ( <i>Cyanosylvia svecica</i> )	7	(1-19)	4	(2-8)
Robin ( <i>Erithacus rubecula</i> )	52	(4-423)	16	(0-59)
Sedge Warbler ( <i>Acrocephalus schoenobaenus</i> )	1	(0-2)	11	(2-37)
Blackcap ( <i>Sylvia atricapilla</i> )	18	(3-36)	3	(0-5)
Barred Warbler ( <i>Sylvia nisoria</i> )	6	(0-19)	0	
Garden Warbler ( <i>Sylvia borin</i> )	28	(6-62)	3	(0-11)
Whitethroat ( <i>Sylvia communis</i> )	8	(2-13)	26	(0-69)
Lesser Whitethroat ( <i>Sylvia curruca</i> )	8	(1-17)	10	(0-55)
Willow Warbler ( <i>Phylloscopus trochilus</i> )	102	(12-535)	55	(7-306)
Chiffchaff ( <i>Phylloscopus collybita</i> )	13	(3-27)	1	(0-5)
Yellow-browed Warbler ( <i>Phylloscopus inornatus</i> )	3	(0-7)	0	
Goldcrest ( <i>Regulus regulus</i> )	63	(2-317)	0.4	(0-2)
Spotted Flycatcher ( <i>Muscicapa striata</i> )	7	(1-22)	11	(3-46)
Pied Flycatcher ( <i>Muscicapa hypoleuca</i> )	41	(7-212)	9	(1-42)
Red-breasted Flycatcher ( <i>Muscicapa parva</i> )	2	(0-11)	0	

NOTES: (i) The following 5 species occurred with a frequency of more than 0.5 but less than 2.0 per annum, the autumn average being given before the May one: Grasshopper Warbler (*Locustella naevia*) (0.4, 1.3), Reed Warbler (*Acrocephalus scirpaceus*) (1.1, 0), Icterine (*Hippolais icterina*) (1.1, 0.3), Wood Warbler (*Phylloscopus sibilatrix*) (1.3, 0.6) and Arctic Warbler (*Phylloscopus borealis*) (0.7, 0). In addition, 4 other species in May and 11 in autumn occurred with a frequency of less than 0.5 per annum.

(ii) The addition of the mean figures for April, watched in 1956, '58, '59 and '60, would have raised the mean spring total by 17 in the Robin, by 6 in the Goldcrest, by 2 in the Chiffchaff and by 1 in Redstart, Black Redstart, Blackcap, Willow Warbler and Stonechat (*Saxicola torquata*). The inclusion of 500 Robins on 30 March 1958 would have greatly raised the spring average for that species.

TABLE 2.—Comparison between Fair Isle and Spurn Point.

Annual means between dates specified in 1949-1959 inclusive for all species with a mean of at least 2 at one observatory at one season.

	20th Aug. - 10th Oct.		1st - 31st May	
	Fair Isle	Spurn	Fair Isle	Spurn
Stonechat	0.3	6	0	0.2
Whinchat	84	40	15	9
Redstart	205	63	43	7
Black Redstart	0.1	2	2	0.6
Bluethroat	7	1	4	0.2
Robin	15	76	12	2
Sedge Warbler	1	6	12	13
Blackcap	14	5	3	1
Barred Warbler	6	1	0	0
Garden Warbler	26	13	3	3
Whitethroat	7	29	23	45
Lesser Whitethroat	7	3	10	4
Willow Warbler	106	50	32	41
Chiffchaff	7	5	1	0.4
Yellow-browed Warbler	2	0.3	0	0
Golderest	57	410	0.3	0.3
Spotted Flycatcher	8	9	11	8
Pied Flycatcher	41	99	6	3
Red-breasted Flycatcher	2	2	0	0
TOTAL (including rarities)	603	827	179	138

NOTES: (i) The means for Fair Isle are not identical with those in Table 1 as they refer to a somewhat different period.

(ii) The means for Spurn in autumn exclude all birds that were probably departing from England, the criterion for exclusion being considered in Lack (1960a). Inclusion of all migrants at Spurn would have raised the overall mean to 916 and those of the Whinchat to 56, Redstart to 69, Sedge Warbler to 10, Whitethroat to 51, Willow Warbler to 82, Spotted Flycatcher to 12 and Pied Flycatcher to 102 (cf. Lack 1960a Table 5).

(iii) In 11 years' observations in May at Spurn, 74 out of a possible 341 days were missed, so the totals of arrivals were increased proportionately in calculating the annual means.

TABLE 3.—Autumn arrivals of over 50 birds on Fair Isle and Isle of May, and possible weather factors influencing Fair Isle.

Date	No. of arrivals		mid-Norway at midnight			Fair Isle 06.00 hrs.		
	Fair I.	May I.	Gen. Sit.	Wind Dir.	Full Overcast	Wind Dir.	Wind Str.	Full Overcast (F - front)
21.8.50	96	-	T	SE	$\frac{1}{2}$	SW (SE)	23	+(F)
24.8.50	1	57	A	SE	0	SE (NE)	04	+
12.10.50	3	72	T	NW	$\frac{1}{2}$	SW (SE)	16	+
1.9.51	71	(34?)	T	SW (SE)	0	SW	15	0
24.9.51	53	11	T	SE	+	SE	30	+
1.10.51	265	650+	A	SW (SE)	$\frac{1}{2}$	SE	19	+
2.10.51	38	650+	A	v.	+	SE	19	+
12.10.51	56	67	A	SW (SE)	0	SSE	40	0
14.10.52	0	79	A	SE	0	SE	07	+
31.8.53	51	0	T	NE	0	NW (SE)	07	0
15.9.53	3	52	A	SW	0	SE	36	0
16.9.53	18	55	A	SW	0	SE	25	0
17.9.53	44	80	A	v.	0	SE	24	0
18.9.53	3	62	A	E	0	SE	26	+
4.9.56	1945	157	T	NE	$\frac{1}{2}$	NE (SE)	22	+(F)
5.9.56	319	73	T	NE	$\frac{1}{2}$	SE	05	+
8.9.56	6	99	D	SE NW	$\frac{1}{2}$	N (v.)	06	+
24.9.56	3	63	T	SW (SE)	0	SE	17	+
19.9.57	162	4	T	SE	$\frac{1}{2}$	SE	40	+
20.9.57	1064	409	T	SE	0	NE (E)	11	0
21.9.57	2	154	T	ENE	0	NE	02	0
2.9.58	51	-	A	SW (SE)	0	SE	32	+
5.10.59	317	108	A	SW (SE)	$\frac{1}{2}$	SSE	30	+
13.10.59	160	-	A	S (v.)	$\frac{1}{2}$	S NE (v.)	06	+(F)
14.10.59	201	-	A	SW	+	SSW	18	+(F)

NOTES: (i) The table covers all autumn days 1950-59 when at least 50 birds arrived on Fair Isle or the Isle of May, but the weather is set out solely with respect to Fair I. - means that the Isle of May was not manned on the date in question.

(ii) Under "gen. sit." A means anticyclone, T transitional and D disturbed weather.

(iii) Wind-directions were assessed from the isobars: "v" means variable, usually very light, winds; A second direction placed in brackets after the first means, for mid-Norway, that the wind was S.E. rather further south than lat. 62 deg. N. on the night in question, and for Fair Isle that the wind blew from a different direction before 06.00 hours (on 21.8.50) or later in the day (all other instances).

(iv) Full overcast in mid-Norway was assessed from up to 4 stations on the west coast, being scored as + when all recorded it,  $\frac{1}{2}$  when at least one but not all did so, and 0 when none did so. At Lerwick near Fair Isle, it was scored as + when recorded at 06.00 or 12.00 hours, and 0 if at neither. (F) was added if the weather chart showed a front over the area.



TABLE 4.—Influence of weather situation on arrivals at Fair Isle 19 Aug.-14 Oct. 1950-59.

	gen. sit. mid-Norway	wind-direction mid-Norway	wind-direction Fair I.	total no. of days	No. of days with an arrival of						mean no. of arrivals per day
					50+	20- 49	10- 19	3- 9	1- 2	0	
1.	A	E	E	29	.	4	6	8	5	6	10
2.	A	v.	E	8	.	5	2	.	1	.	25
3.	A	E	W	5	.	.	1	2	1	1	5
4.	A	W	E	27	4	6	3	7	5	2	35
5.	A	W	W	30	1	2	1	7	11	8	12
6.	A	S	S	4	1	.	.	.	2	1	41
7.	T	E	E	53	5	8	7	11	12	10	74
8.	T	E	W	18	2	2	3	4	2	5	15
9.	T	W	E	23	.	.	1	4	7	11	1
10.	T	W	W	98	1	.	2	24	40	31	3
11.	T	S	S	3	.	.	.	2	.	1	4
12.	D	E	E	23	.	1	3	7	6	6	4
13.	D	E	W	54	.	.	1	8	19	26	1
14.	D	W	E	16	.	1	1	1	9	4	3
15.	D	W	W	179	.	1	1	21	68	88	1
TOTAL				570	14	30	32	106	188	200	12

NOTES: (i) The dates analysed were as shown in the title, except that the observatory was not manned on 13th and 14th October 1953, while I added in small arrivals on 15th and 16th October 1952.

(ii) A means anticyclonic, T transitional and D disturbed weather in mid-Scandinavia.

(iii) The wind was recorded as E or W provided it had any appreciable easterly or westerly component, and S (southerly) only when it had not got such a component both in mid-Scandinavia and between Fair I. and southern Scandinavia. It was recorded as "v" when very light indeed in mid-Scandinavia with an easterly wind further south.

(iv) For a corresponding analysis of arrivals in eastern England, see Lack 1960a, Table III, but the numbering of the weather-types differs owing to the insertion of type 6 above.

(v) In 1948 and 1949, omitted from the above analysis, there were 3 arrivals of 20-49 birds, 11 arrivals of 10-19 birds, 34 arrivals of 3-9 birds, 25 arrivals of 1-2 birds and 41 days with no arrivals.

TABLE 5.—Influence of wind-direction off Fair Isle in morning on arrivals 19 Aug.-14 Oct. 1950-59.

Wind-direction	Total No. of days	No. of days with arrival of				
		50+	20-49	10-19	3-9	0-2
similar at 06.00 & 12.00 hrs.						
NE	45	.	5	3	10	27
SE	91	6	14	13	18	40
SW, W	239	3	1	7	41	187
NW	132	.	2	1	23	106
different at 06.00 & 12.00 hrs.						
(i) NE (ii) SE or E	6	3	.	3	.	.
(i) SE or E (ii) SW, W or NW	24	1	6	4	5	8
(i) NE (ii) SW or NW	7	.	1	.	2	4
miscellaneous (mainly N or S)	26	1	1	1	7	16
TOTAL	570	14	30	32	106	388

NOTES: (i) The directions N and S were used as little as possible as it seemed specially important to decide whether the wind had an easterly or westerly component, while easterly winds were always classified as NE or SE according to whether they had a northerly or southerly component, and westerly winds (from 260-280 deg.) were grouped with SW winds.

(ii) Changes in direction between 06.00 and 12.00 hours were in either direction and not necessarily from that placed first to that placed second above.

TABLE 6.—Influence of wind-speed on autumn arrivals at Fair Isle for all days with SE wind.

Speed of SE wind (in knots)	Total No. of days	No. of days with arrival of				
		50+	20-49	10-19	3-9	0-2
4-17	30	1	3	4	7	15
18-27	30	1	9	6	2	12
28-45	31	4	2	3	9	13
TOTAL	91	6	14	13	18	40

NOTES: (i) The wind-speed in knots was at 900 m. above Lerwick, at the time nearest to 06.00 hrs. each day, for all days with a S.E. wind off Fair Isle at both 06.00 and 12.00 hours.

(ii) For convenience the wind speeds were grouped so as to give an almost equal number of days in each group. For easier comparison with Table 10, the 18 days with a wind of 4-12 knots included 14 on which at most 10 birds arrived.

(iii) On 5th September 1956, 319 arrivals were recorded with a 5-knot S.E. wind, this being the only big arrival with a light S.E. wind. Possibly, many of those arriving that day were drifted off-course on the previous day.

(iv) The average number of arrivals for different wind-speeds depends too greatly on the few big arrivals to be of significance. The mean figures for winds of 4-17, 18-27, and 28-45 knots respectively were 17, 22 and 20 birds, but had 5th September 1956 been excluded as doubtful, it would have been only 7 birds for winds of 4-17 knots.

TABLE 7.—Autumn arrivals of four sparse species on Fair Isle  
19 Aug.-14 Oct. 1950-59 inclusive.

Size of arrival of all spp.	(i) Bluethroat	(ii) Barred Warbler	(iii) Yellow-browed Warbler	(iv) Red-breasted Flycatcher	(ii) (iii) & (iv)
Number of arrival of above species					
over 50	17	4	0	1	5
10-49	22	29	13	8	50
3-9	17	17	9	12	38
0-2	16	16	4	4	24
Direction of wind off Fair I. at 06.00 hrs. & 12.00 hrs.					
NE	2	6	1	1	8
SE	37	16	5	10	31
SW, W	14	20	9	10	39
NW	5	14	1	2	17
NE & E, SE	6	2	0	0	2
SE & SW, W, NW	6	5	6	2	13
NE & SW, NW	0	1	1	0	2
N, S, or misc.	2	2	3	0	5
TOTAL	72	66	26	25	117
Proportion of arrivals with					
50+ arrival of all spp.	24%	6%	0	4%	4%
S.E. wind (including occasions when it was N.E. for part of morn)	60%	27%	19%	40%	28%
SW, W or NW wind all morning	26%	52%	38%	48%	48%

TABLE 8.—Arrivals of over 50 birds on Fair Isle and the Isle of May in May 1950-60 inclusive.

Date	No. of arrivals May I.	No. of arrivals Fair I.	Gen. Sit. E. Channel Midnight	Wind off E. Anglia 06.00 hrs.	Wind east of May I. 12.00 hrs.	Wind south of Fair I. 12.00 hrs.	Full overcast Leuchars	Full overcast Lerwick
8. 5. 50	7	53	D	NE	NE	E	.	.
{ 20. 5. 50	80	28	D	SE	E	NE	+	.
{ 21. 5. 50	77	11	D	NE	SE	NE	+	+
23. 5. 50	267	16	T	NW	NE	NE	+	+
2. 5. 51	93	4	D	SE	SE	SE	+	+
7. 5. 51	52	0	T	NE	NE	NE	.	.
18. 5. 51	67	17	T	NE	SE	S	.	.
20. 5. 51	41	109	T	SE	SE	SE	+	+
1. 5. 52	72	8	D	SE	SE	SE	+	+
{ 5. 5. 52	607	227	D	SW	SW (SE)	SE	+	+
{ 6. 5. 52	127	152	D	SW	SE	SE	.	+
8. 5. 53	54	1	T	E	SE	NE	+	.
21. 5. 53	54	3	T	SE	SE	SE	+	+
2. 5. 54	50	0	D	SW	E	NE	+	+
5. 5. 54	116	72	T	NW	SE	(SE)	+	+
4. 5. 55	(-)	86	T	SW	SW	SW, SE	+	.
28. 5. 55	6	61	D	SE	SE	E	.	.
5. 5. 56	65	1	A	SW	SW	SW	+(F)	.
29. 5. 58	0	55	T	SW	SW (SE)	SW, SE	.	+
9. 5. 59	80	0	T	SE	SE	SE	.	+
13. 5. 59	58	7	A	E	SE	SW	.	+
25. 5. 59	50	6	A	NE	E	v. (NW)	+	+
{ 11. 5. 60	2	67	T	SE	SE	SE	.	.
{ 12. 5. 60	7	330	T	SE	SE	SE	.	.
{ 13. 5. 60	2	157	T	SE	SE	SE	+	+
{ 14. 5. 60	88	0	A	SW	SE	SE	+	+
{ 15. 5. 60	20	86	A	E	SE	SE	.	+

NOTES: (i) The methods of assessment and abbreviations used were the same as for Table 3, except that + was recorded for full overcast at one of three times each day, 06.00, 12.00 and 18.00 hours.

(ii) The only other big arrival so far recorded on Fair I. in spring was of 500 Robins on 30 March 1958, with disturbed weather in the Channel, strong S.E. winds off E. Anglia, Isle of May and Fair I. and rain at Leuchars and Lerwick.

(iii) Arrivals of 30-49 birds in May 1950-60 were recorded 5 times on Fair I. (once when the Isle of May was not manned) and 8 other times on the Isle of May (i.e. in addition to 20 May 1951 in Table 8). For these 13 days, the weather situation in the Channel was A for 1, T for 11 and D for 1. The wind off the Isle of May was S.E. for at least part of the day for all 8 arrivals there (but westerly for part of 4 of these). The wind south of Fair Isle for the 5 arrivals there was S.E. for 4 and N.E. for 1. Full overcast was recorded at Leuchars for 5 of the 8 arrivals on the Isle of May, and at Lerwick for 2 of the 5 arrivals on Fair I.

(iv) At Spurn Point in May 1950-60 there was only one arrival of over 50 birds (omitting Wheatears), namely on 10th May 1958, and 3 more

of 30-49 birds on 5th May 1951, 1st May 1954 and 8th May 1959, but the record was incomplete. On all four days there was full overcast, on one an east wind and on the other three a S.E. wind for part of the day due to a depression to the southwest moving northeast.

TABLE 9. - Influence of wind-direction on arrivals at Fair Isle in May 1950-60.

Wind-direction at 1200 hrs off Isle of May and Fair I.	Total No. Days	Number of days with arrival of					Mean No. of arrivals per day
		50+	20-49	10-19	3-9	0-2	
(i) NE off both	48	.	1	1	9	37	2
(ii) SE off both	62	8	9	5	20	20	26
(iii) easterly, SE off one	8	1	2	2	2	1	16
(iv) easterly, SE off neither	21	1	3	0	3	14	7
(v) westerly off May, SE off Fair I.	18	2	2	5	3	6	17
(vi) other mixed	54	.	.	2	14	38	2
(vii) westerly off both	129	.	.	1	20	108	1
TOTAL	340	12	17	16	71	224	8

NOTE: In May 1949, omitted from the above analysis, there was one arrival of 38 birds, 7 arrivals of 3-9 birds, and 23 arrivals of 0-2 birds.

TABLE 10.—Influence of wind-speed on arrivals at Fair Isle in May, for all days with a S.E. wind off both Fair Isle and the Isle of May.

Speed of SE. wind in knots	Total No. of days	No. of days with arrival of				
		50+	20-49	10-19	3-9	0-2
1-12	21	(1)	2	2	6	10
13-20	21	5	5	1	6	4
21-35	20	2	2	2	8	6
TOTAL	62	8	9	5	20	20

NOTES: (i) The wind-speed in knots was that at 900 m. above Lerwick, at the time nearest to midday each day, for all days on which the wind was S.E. at midday off both Fair Isle and the Isle of May.

(ii) For convenience, the wind-speeds were grouped so as to give an almost equal number of days in each group. Had the last group been for winds of 25-35 knots, the only two 50+ arrivals, also two 0-2 arrivals, would have been excluded.

(iii) The only big arrival with a wind of 1-12 knots was bracketed, because though the wind was S.E. south of Fair Isle as judged from the isobars, it was N.W. at 2 knots above Lerwick (on 5th May 1954).

(iv) The average number of arrivals for different wind-speeds depends too greatly on the few big arrivals to be of significance. The mean figures for winds of 1-12, 13-20 and 21-35 knots respectively were 8, 39 and 31 birds, for winds of 1-12 knots omitting 5th May 1954 5 birds, and for winds of 25-35 knots 7 birds. It should be added that 500 arrived with a 48-knot S.E. wind above Lerwick on 30th March 1958.

APPENDIX TABLE 1.—More detailed analysis of influence of weather in autumn of types 1, 2, 4 and 7 (as defined in Table 4) on arrivals on Fair Isle.

Wind	No. of days of each type with arrival on Fair I. of					
	50+	20-49	10-19	3-9	1-2	0
	Weather in Mid-Norway at midnight					
NE	2	4	3	7	10	8
E	.	2	1	3	1	2
SE	3	6	9	9	6	5
S	.	.	1	.	.	1
SW	4	4	1	4	2	.
W	.	1	2	.	2	2
NW	.	1	.	3	1	.
v.	.	5	.	.	1	.
Full overcast						
Recorded	6	15	6	9	12	11
Not recorded	3	8	12	17	11	7
	Weather near Fair I. at 06.00 hours.					
Wind						
NE	1	6	3	6	9	10
E	.	2	1	2	1	.
SE	8	15	14	18	13	8
Full overcast						
Recorded	7	15	12	18	17	9
Not recorded	2	8	6	8	6	9
Mean speed in knots of E-SSE winds	27	22	22	22	21	25

NOTES: (i) This table is based on 9 days with arrivals of 50+ birds, 22 of 20-49, 18 of 10-19, 26 of 3-9, 23 of 1-2 and 18 of 0, but for the mean speed of E-SSE winds at 900 m. above Lerwick, the corresponding numbers of days were 8, 17, 15, 20, 14 and 8 respectively.

(ii) For the 4 arrivals of 50+ birds with a S.W. wind in mid-Norway the wind was S.E. rather further south.

APPENDIX TABLE 2.—Influence of full overcast and general situation on arrivals at Fair Isle in May, for all days with a S.E. wind off both Fair Isle and the Isle of May.

	Total No. of days	No. of days with arrival of				
		50+	20-49	10-19	3-9	0-2
Full overcast at Lerwick						
recorded	39	6	7	2	15	9
not recorded	23	2	2	3	5	11
General situation in Channel						
anticyclonic	9	1	1	0	2	5
transitional	37	5	6	3	13	10
disturbed	16	2	2	2	5	5

NOTES: (i) Full overcast was considered as present when recorded at Lerwick at 06.00, 12.00 or 18.00 hours on the day in question.

(ii) The general weather situation was that on the eastern side of the English Channel at midnight.

(iii) The mean number of arrivals in each type of weather is too greatly affected by the few big arrivals to be of significance, but it was 28 when full overcast was recorded, 23 when it was not, and 13 with anti-cyclonic, 37 with transitional and 15 with disturbed weather.

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It is regretted that our illustrations have had to be omitted  
in this number owing to pressure of space.

## SHORT NOTES

## ROUGH-LEGGED BUZZARD IN EAST LOTHIAN

At 10.30 a.m. on 2nd October 1960 we raised a large bird from the edge of a stubble field by the R. Tyne below East Linton. In size and appearance it was clearly a buzzard, and, as it rose 15 yards ahead and flapped heavily into a near-by willow, we saw that it had a conspicuous white tail with a dark terminal band. The general colour was brown above and very pale below. Mobbed by Rooks it soon moved to another tree, and we noted the dark primaries and black carpal patches on the underside of the wings. We deduced that it was a Rough-legged Buzzard *Buteo lagopus*.

In the late afternoon we returned with T. Boyd and R. W. J. Smith and flushed the bird from the edge of a patch of scrub where it was feeding on a dead rabbit. It landed again behind a bank of trees where we found it with another rabbit, freshly killed. This time, as it flew past only eight yards away, we saw the dark belly and the feathered legs.

There are many rabbits in the field, some with myxomatosis, and both the dead ones had the skin ripped off round the nape.

IAIN B. ROY.

WILLIAM M. SKENE.

(We have received a very detailed description from Alastair Macdonald, who saw the bird at the same place on 3rd October. He mentions the pale creamy buff head and neck streaked with brown, the streaks getting thicker towards the dark brown waistcoat; orange yellow legs feathered to the feet; flight heavy and leisured. It seemed to like perching on straw bales, which made it easy to watch, especially when it was so relatively approachable. R.W.J.S. describes the wings as roughly the same colour as a Short-eared Owl's, with alternate dark and buff patches, but with a white crescent near the tips caused by the whitish bases of the primaries: wings very "fingered.")

The bird was seen again early on 4th October by Andrew T. Macmillan when it was feeding on a dead rabbit in the same corner of the field close to the scrub and willowherb. Excellent views were had as it flapped and glided from bale to bale—a just reward for rising two successive mornings at 6 a.m.! It was quite unlike the Rough-legged Buzzards illustrated in



*The Handbook*, but there is a good likeness in the *Field Guide*, except for the tail, which was not so clearly black and white as shown.

The bird was seen again in the area on 6th, 15th and 22nd, and on 29th and 30th October by various people attending the S.O.C. Annual Conference at North Berwick. --Ed.).

### GOSHAWK IN EAST STIRLING

Near Skinflats, on the upper Firth of Forth, on the afternoon of 21st August 1960 we saw a Goshawk *Accipiter gentilis* chase and strike a Herring Gull, then break off the attack after the gull had lost a handful of feathers.

In size the Goshawk was about the same as the Herring Gull, but appeared the longer bird. As it circled the immediate area, its flight, resembling that of a large Sparrowhawk, seemed almost leisurely compared with the speed and ease with which it had closed with its quarry a few moments before. The bird was dark brown above with a paler underside heavily streaked with brown, with dark bars under the wings. The tail, fanned out in several quick turns, had three dark bars on a creamy buff ground, the last of these forming a distinct terminal band. The under tail-coverts were pale, but in this individual not a particularly noticeable diagnostic feature. We both saw a pale patch on the side of the head, but cannot be certain whether it was an eyestripe or simply a pale area on the cheek.

We assumed the bird to be an immature female from its size and breast markings.

G. DICK.  
J. POTTER.

### RED GROUSE AT ST KILDA

On 5th December 1959, together with five other men, I flushed a cock Red Grouse *Lagopus scoticus* near the top of Gleann Mor, St Kilda. This is a bird with which I have long been familiar, having been employed as a grouse-beater on several occasions. The bird was observed twice that afternoon and not seen again. On both occasions we were close enough to observe its chestnut colouring and red wattles over the eyes. It rose with the familiar call and whirring wing-beat of the Grouse. During the previous week there were easterly gales, with wind speeds of up to 90 m.p.h. at sea level. This is the first record of a Red Grouse at St Kilda, though a Ptarmigan *Lagopus mutus* was recorded in winter by the Rev. Neil Mac Kenzie who lived there from 1829 to 1843.

J. A. MacKAY.

DOWITCHERS IN EAST LOTHIAN AND  
LANARKSHIRE

On 29th September 1960, at the west side of Gullane Point, East Lothian, my wife and I saw a wader alight on some seaweed about 25 yards away. Although at close range, I realised that I had not seen its like before.

The bird was about Redshank size, and portly. The most striking features were its very long, straight, snipe-like bill, and its method of feeding. It repeatedly jabbed its bill into the weed with a rapid piston motion like a steam hammer. The general colour was grey, with legs clearly olive-green and shorter than a Redshank's. The crown, nape and mantle were light grey with no apparent markings; very pale eyestripe; underparts whitish, the breast very faintly streaked with grey on a lighter grey ground; rump very noticeably white extending well up the back and as prominent as a Greenshank's. We had an excellent view of this as the bird flew ten yards to land on a rock, and we also saw that the tail was white, though not so obviously white as the rump. I took particular note of a faint white stripe or pattern on the after edge of the wing.

After a few minutes the bird took off and flew eastwards round the point. It did not call and we could not find it again. I feel certain we were watching a Dowitcher *Limnodromus* sp. in winter plumage. The picture of a Dowitcher in "fall" plumage in Peterson's *Field Guide to the Birds* fits our bird perfectly.

A. ABLETT.

A Dowitcher *Limnodromus* sp. was seen in the Low Parks, Hamilton, by W.K.R. on 8th, 10th and 11th October 1960, and by M.F. and D.S. on the 12th, when it was observed from about 25 yards.

The following description is compiled from notes by the three observers. *Size*, smaller than Redshank, but larger than Dunlin. *General appearance*, plumage very dark; at times and in certain lights a purplish effect was given. When alarmed, with head and neck stretched out, looked very Reeve-like. *Head*, head and crown dark brown, pale eyestripe not very conspicuous and not very obvious at a distance. *Back*, general colour dark brown but with lighter edgings to some feathers ("mouse-brown" W.K.R.); long narrow white patch extending from rump well up on to back, contrasting with rest of plumage. Trailing edges of wings markedly whitish. *Underparts*, white, with occasional dark mottling: this was noted on the flanks by W.K.R., while D.S. says it was more obvious in front of neck, giving slight "apron" effect when bird facing. No suggestion of chestnut on breast. *Bill*, extremely long, snipe-like,

appeared black. *Legs*, very dark, but not black: rather short compared with Redshank's. *Call-note*, constantly repeated. "A weak, shrill *cheet... cheet*" (W.K.R.): "*tleet*—softer and more liquid than that of the Redshanks" (D.S.). *Flight*, straight, fast, and without any of the twists and turns of the Common Snipe. *Feeding*, fed quickly, probing in the mud and sometimes immersing whole head: "energetic pumping motion" (W.K.R.); feeding mostly in water, with graceful gait, always in the open.

W.K.R. considers the bird to have been a Long-billed Dowitcher *L. scolopaceus*, adding: "Though I have seen and heard Eastern Dowitchers *L. griseus* on autumn passage in Canada and New York State, the call-notes of this individual at once struck me as entirely unfamiliar. Outside the breeding season the Eastern Dowitcher's callnote is a threefold whistle, often compared with that of the Yellowlegs, and not unlike a Greenshank's. Peterson (*A Field Guide to the Birds*) describes that of the Long-billed as "a single, thin *keek*, occasionally trebled." In view of the distinctive quality of the call-notes I now feel that the field identification of the two is relatively simple. Length of bill is not a reliable characteristic, certainly, but this particular bird's was quite as long as a common Snipe's. I was also struck by the darkness of its plumage: all the Eastern Dowitchers I have seen were rather paler, besides being less vocal. The lateness of the date also points to the probability of this vagrant being a 'Long-bill'."

M. FORRESTER.

W. K. RICHMOND.

D. STALKER.

(These seem to be the fifth and sixth records of Dowitchers in Scotland, being respectively the first for Forth and East Lothian, and the second for Clyde and Lanark.—Ed.)

#### WOOD SANDPIPER BREEDING IN WEST INVERNESS-SHIRE

On 10th June 1960 my wife and I, accompanied by a friend, Mr Roderick Cameron, were watching a pair of Greenshanks *Tringa nebularia* on the shore of a large loch in a desolate glen in West Inverness-shire. As they seemed to have young in the vicinity we spread out to search for them. The terrain was rough peat hagg, divided by boggy channels, with firm patches of heathery ground amongst which grew bog myrtle *Myrica gale*. After about twenty minutes searching my wife noticed a small long-legged wader standing on top of a heathery hillock about fifty yards away from the loch. She called me over and, as I approached, the bird rose into the air and flew around in an agitated way, very like the flight of a Redshank when its young are in danger. The wings were

arched and pointing downward: it hung in the air and moved from one position to another with quick erratic beats of the wing, and vibrating primaries.

It was at once joined by a second bird which acted in a similar manner, both birds all the while calling a constant, loud "Kleep—keelp—keelp -keelp..." Sometimes one bird or the other would alight on a small knoll in the heather and, with drooped wings, continue to call loudly.

As they allowed close approach, I was able to view them at close range with 8x binoculars and, even with the naked eye, I could see the white rump, barred tail, brown speckled back and feet projecting beyond the end of the tail in flight. They were easily identified as Wood Sandpipers *Tringa glareola*. On the ground the bird had a long-legged appearance, with greyish underparts, buff toward the flanks and pale buff line over the eye.

As I was sure they had eggs or young in the vicinity, we retired some distance, dropped into the heather and watched them with binoculars. One bird settled on a small knoll, the second alighted on the heather, both still calling. After a minute or so, both birds were silent and standing motionless. We watched them for a further ten minutes but, as they did not move, we decided to go into cover behind the hillock on which my wife had first seen the bird. There we waited for about ten minutes, crept over the top of the hillock and shouted. At once both birds were in the air again calling their "Kleep—keelp—keelp..." One bird rose from the direction of the small knoll and the second appeared from a point somewhere between us and the edge of the loch about fifty yards away, but we did not see exactly where it rose. We made a short search but found nothing.

I then went into hiding behind a large boulder at the foot of the hillock and asked my wife and our friend to walk away from the spot. After about three minutes all was quiet. I gave the birds a further eight or nine minutes to settle down, and rushed out and over the top of the hillock and down the other side. As I went over I saw one of the birds rise quickly out of the heather about twenty yards from the base of the hillock. I went straight to the spot and there was the nest containing four eggs. The time was 4.45 p.m.

The eggs were lying point to point. They varied in size and marking, two of them being noticeably larger. They were sub-pyriform in shape, with slight gloss. The ground colour was of light stone slightly inclined to green. Two of the eggs were heavily spotted and blotched with dark brown and greyish purple, the brown being slightly more concentrated toward the rounded end. The remaining two eggs were similarly coloured, but with speckled markings rather than blotches.

The nest was sited among sparse heather and bog myrtle. It was a slight depression in the ground lined with a few broad blades of dead grass and near a small surface pool.

On the following day, in overcast, rainy weather, we returned to the nest, and I photographed both the site and the nest in the poor natural light, and again with flash bulb.

We then measured the eggs and nest with Vernier calipers before leaving. The egg measurements were as follows: 1. 40.2 x 27.6 mm. 2. 38.5 x 27.4 m.m. 3. 37.4 x 27.3 mm. 4. 37.3 x 26.8 mm. Average 38.35 x 27.27 mm. The nest measurement was 80 mm. across the cup.

RONALD COOK.

### EXCEPTIONAL NUMBERS OF LITTLE STINTS IN MORAYSHIRE

At Findhorn Bay, Morayshire, on 18th September 1960, on a large stretch of mud and sand, I picked up several hundreds of small waders at about half a mile range. I noticed immediately that many were much smaller than Dunlin *Calidris alpina*, which were in the majority. I got to within twenty yards of the outermost birds and worked along the line with the setting sun behind me. I found two Curlew Sandpipers *C. testacea* and then a Little Stint *C. minuta*. The latter was a little wild: it worked rapidly along the line of Dunlin and eventually flew to join another group of waders nearer the shore. I examined this group, but could not find any smaller bird among them. To my amazement every bird was a Little Stint. I examined size and bill and counted 106. A group of 106 birds every one of which was a Little Stint!

On 20th September counts made by A. Pringle and A. Raffan showed that about the same number were still present, and the same is probably true of the 21st when, however, the birds had broken up into smaller parties and were less easy to count.

W. CRAWFORD.

### PECTORAL SANDPIPER IN EAST STIRLING

On 19th September 1960, near Grangemouth, we found a Pectoral Sandpiper *Calidris melanotos* resting on the mud of a recently flooded field, so tame that we were able to observe it from several angles at 30 feet using a 25x telescope on a tripod.

Its most noticeable features were the yellowish green legs, brown bill shorter than Dunlin's and very slightly decurved, and the warm brown bib with dark markings running like dotted lines to the point where the bib ended and the pale underside began: the underside shaded from pale grey on the breast to white on the under tail-coverts.

The dark eye seemed large and had a prominent orbital ring. The bird had a small brown cap. The pattern of markings on the neck, nape and mantle were not so clear as on the bib; they began small and faint on the neck and became progressively larger and darker in the regular pattern towards the mantle. The wing-coverts were dark-centred, edged with buff, so arranged that the bird appeared to have a body stripe like a Snipe. This feature was not prominent in flight, when, however, the bird showed a tail pattern like a Dunlin's. The call-note suggested that of the Dunlin, but was harsher: it was repeated at short intervals.

G. DICK.  
J. POTTER.

(Mr Dick has submitted sketches of the bird which confirm its identity.—ED.).

#### BUFF-BREASTED SANDPIPERS IN EAST LoTHIAN AND SUTHERLAND

While we were playing golf on Gullane No. 3 course on 18th September 1960, my wife drew my attention to a small wader in the middle of the fairway. It was immediately obvious to me that I had never seen a bird of this sort before. I noted details at once of what I thought to be the diagnostic features and, while playing the next hole, went back to see it again and then wrote on a slip of paper exactly what I had observed.

At first sight the outstanding feature was its trim, neat appearance, with slender neck and short head. It was entirely buff underneath with a light head and short black bill about an inch long; its legs were unmistakably yellow and its back had clear-cut markings in black and buff. In a closer view I saw that the eye was black and that there was the slightest suspicion of a light mark above and round the eye, not amounting to an eyestripe, perhaps a facial disc slightly lighter than the top of the head and the neck.

The bird was exceptionally tame, quite unworried by our nearness to it, but tended, when we got very near, to hold itself more horizontally, with its neck stretched out. I would have liked to hear its alarm note, but had no wish to flush it. It was feeding throughout on the short grass of the fairway and seemed to be taking flies as part of its food.

On looking at the *Field Guide* my wife, a friend who was with us and myself all, without consultation, decided that the bird we had seen was a Buff-breasted Sandpiper *Tryngites subruficollis*.

J. E. KING.

While crossing the saltmarsh adjoining Dornoch Point on

25th September 1960, I saw a small wader which I did not recognise. Throughout the fifteen to twenty minutes that I watched the bird it remained in company with a small flock of Grey Plover and for a short period I was able to view it through binoculars at a range of about 25 yards. From the following details, which were noted while the bird was still under observation, I later identified it as a Buff-breasted Sandpiper *Tryngites subruficollis*. *Size*, slightly more than half that of a Grey Plover and slightly larger than a Dunlin. *General impression*, a slim wader with a noticeably rounded head, slender neck, short thinnish bill and scaly pattern of plumage on mantle. *Crown*, dark. *Mantle and back*, dark feathers with pale edgings similar to Ruff. *Wing*, sharply pointed: no wing bar visible in flight. *Rump*, dark; no light colour visible in flight. *Face, neck, throat and upper breast*, brownish buff, no eyestripe. *Lower breast and underparts*, paler; whitish beneath; no visible line separating the buff higher up from the paler colour below. *Underwing*, glimpse of white in flight. *Eye*, dark. *Bill*, black. *Legs*, not too clearly seen but appeared to be pale brown, certainly not dark.

During most of the time the bird was very active and progressed by a fairly quick walk with legs slightly bent. At no time was it seen to run. A noticeable feature was the rapid motion with which it turned its head in various directions as it probed the short grass in search of food. No call-note was heard.

D. MACDONALD.

(These are the third and fourth records of the Buff-breasted Sandpiper in Scotland.--Ed.).

#### AVOCET IN EAST LOTHIAN

On 9th April 1960 I had a good view of an Avocet *Recurvirostra avosetta* at Tynninghame. As I watched from the embankment it circled overhead calling and then landed further along at the mouth of the River Tyne. I saw the bold black and white pattern and the slender upturned bill.

This is the third record for Forth and the second for East Lothian, a party of up to five having been seen at Aberlady from 6th to 11th April 1958 (*Edinburgh Bird Bulletin* 8: 85).

T. BOYD.

#### GULL-BILLED TERN IN EAST LOTHIAN

On the morning of 11th September 1960 I was at the extreme north-east corner of Aberlady Bay, walking along the shore towards Gullane Point, when I walked into a mixed party of Common, Arctic and Sandwich Terns that flew up around me. Among them was a bird I identified as an adult

Gull-billed Tern *Gelochelidon nilotica* moulting out of summer plumage. The bird in general size, shape, speed of wing-beats and carriage in the air resembled a Sandwich Tern, with the exception that, in flying diagonally overhead, it was appreciably shorter—a difference that was no longer discernible when it was flying away from me. The character that struck me immediately was the bill—short, thick, with a bump on the lower mandible, and uniformly coloured to the tip: it was not, however, quite pitch black, or at least not so glossy black as that of Sandwich Terns. The shape of the bill was totally unlike that of the other terns, being much thicker and more angled in proportion to its length. The crown and nape were black, but not shaggy: the forehead was white. The mantle looked just appreciably darker than that of the Sandwich Terns: owing to the angle of flight, I never saw the rump. The tail was also hard to see closely, as the bird was keeping it closed, but it did seem less deeply forked, as well as shorter, than the Sandwich Tern's. I saw it in excellent light and at one time it must have been no more than 20 yards away: I had binoculars.

T. C. SMOUT.

#### "BLACK-BELLIED" DIPPER IN ANGUS

On 13th September 1960 I was walking along the banks of the Esk, at The Burn, Edzell, when I saw a Dipper on a rock in midstream. I was at once struck by the absence of chestnut on the underparts and by a distinct demarcation between the white breast and the black belly, without the least suggestion of intervening brown. I was so surprised by this feature that I kept the bird under view for at least five minutes, observing it from several angles in the finest light at ranges down to thirty yards, until it grew tired of this unwonted attention and flew out of sight downstream: there was no possibility of having overlooked a trace of chestnut anywhere on the underparts. The upperparts appeared identical to those of the British Dipper *Cinclus c. gularis*.

I concluded that it must be a Black-bellied Dipper *C. c. cinclus*, without knowing how it came to be on the Esk in September. Since, however, it is unlikely to have been a recently arrived migrant at such a date, it is possible that it had either arrived in the glen in some previous winter, or that it was a freak thrown up by a population of British Dippers.

T. C. SMOUT.

(Professor V. C. Wynne-Edwards comments on this record: "The question is to account for the presence of this bird in Glen Esk in mid September. It could either be (a) an early immigrant from Scandinavia or somewhere else where this



colour type is plentiful, or (b) an unusual member of the local population—a mutant if you like—belonging automatically to the British race if it breeds in Scotland. A geographical race consists of many individuals, often with considerable variability comprised among them, inhabiting an *area*, and its sub-specific name does not apply to any individual, no matter what its colour and measurements, if it breeds outside that area. Evidently the amount of chestnut on the Dipper's breast varies from one individual to another almost everywhere. Thus *The Handbook* says that the typical race *usually* has a tinge of chestnut brown, very rarely as much as in *some examples* of the Irish form, implying variation in both these areas. Under the British race it refers to feathers marked with a *varying amount* of rufous brown.

My guess would be that this bird was a black-bellied example of the British Dipper. If so, it would be interesting to know how numerous and widespread such individuals are in Scotland. The condition is most likely to be hereditary and locally self-perpetuating. It is not more extraordinary than having chestnut-banded birds breeding in Norway, for example, where we know they occur; only black-bellied birds must be pretty scarce here or we would know more about them.")

#### RED-BREASTED FLYCATCHERS IN FIFE AND ABERDEENSHIRE

On the afternoon of 18th September 1960 in the dilapidated garden between the farmhouse and the cottages at Fife Ness my wife and I had the experience of seeing three species of flycatchers—two Spotted, two or three Pied, and two Red-breasted *Muscicapa parva*.

We were watching the Spotted and Pied when a small, plump, pale bird came out of the thick foliage near the base of a tree and perched on one of the lower branches. It was a Red-breasted Flycatcher and, from its orange-red throat and upper breast, a male. A few minutes later we found another similar bird flitting about in the thick foliage at the base of the trees. It was very shy and secretive, darting from one tree to another and only occasionally perching in the open—then only momentarily. In this bird the throat and upper breast were buff.

We saw a third Red-breasted Flycatcher at Fife Ness on 30th September—a buff-breasted bird. This was also seen by Miss P. G. Baxter on 1st October.

R. S. WEIR.

On 17th October 1960 I saw a Red-breasted Flycatcher at Fife Ness, a little plump bird being chased by Stonechats

which were a little larger than it. The throat was off-white. It was very active, flying from one perch to another, catching flies and flicking its tail in the flycatcher manner. It was very tame and I was able to approach within a few feet. Its call was a brisk *chick chick*.

PATRICIA G. BAXTER.

(Dr Weir has appended detailed descriptions of his first two Red-breasted Flycatchers, and Miss Baxter of hers.—Ed.).

On 18th September 1960 in the garden of the Ythan Hotel at Newburgh, Aberdeenshire, I saw a Red-breasted Flycatcher, my identification of which was confirmed by Mr R. W. J. Smith and members of the Edinburgh Natural History Society.

E. A. GARDEN.

(It should be noted that the absence of an orange breast in this species does not necessarily imply that the bird is not a male, since Mr K. Williamson informs us that he has seen a male on its breeding territory without this colouration. First winter birds may be recognised by buff spots at the tips of the innermost secondaries and greater wing-coverts, a conspicuous field characteristic.—Ed.).

## CURRENT NOTES

(The following observers have contributed to this section: A. Ablett, D. R. Anderson, D. G. Andrew, W. Bain (W. Ba.), J. Baird (J. Bd.), J. Ballantyne (J. Bal.), P. G. R. Barbier, Miss K. H. Barr, Miss P. G. Baxter, G. Bennett, W. Birrell (W. B.), T. Boyd, N. Campbell, A. L. Carmichael, C. N. L. Cowper, W. Crawford, Mrs B. A. H. Cunningham, Major P. Deas, G. Dick, D. Donald, Dr W. J. Eggeling, D. Farquharson, M. Forrester, F. W. Gairns, Miss E. A. Garden, D. Grant, J. Grierson, Mrs M. Hill, D. Hope, J. Hoy, Dr D. Jenkins, D. Lawson, A. Macdonald, M. Mc Gechie (M. McG.), A. T. Macmillan, J. Maxwell, M. F. M. Meiklejohn, R. I. Milne (R. I. M.), Rev. R. I. Mitchell (Rev. R. I. M.), M. Mowat (M. M.), W. Murray, B. Neath, C. E. Palmer, J. Potter, A. Pringle, Mrs I. Rainier, W. K. Richmond, E. L. Roberts, Dr M. Rusk, G. L. Sandeman, R. J. W. Shaw, W. Skene (W. Sk.), R. W. J. Smith, T. C. Smout, D. Stalker, W. Stein (W. St.), J. A. Stewart, R. Stokoe, G. Waterston, Dr R. S. Weir and P. Wornell. All notes below are considered reliable by the Editors, and, unless otherwise stated, all apply to 1960).

### *Breeding and distribution*

In 1960 four pairs of **Great Crested Grebes** bred on Duddingston Loch—a considerable improvement on recent years (D.R.A.). On the rubbish dump pool at Hamilton there was a **Black-necked Grebe** (not in breeding plumage) on 17th July: a previous record of this species from the same pool was on 16th, 17th and 19th August 1958 (D.S.).

A **Fulmar** flew south-west over Braid Hills Avenue, Edinburgh, on 16th June (G.L.S.).

In mid-August Mr D. W. Nickson of Buchlyvie found a dead adult **Gannet** on the moors about a mile north of Criarlarich. It looked quite fresh but was already smelly (K.H.B.).

A pair of **Garganey** were seen on Gladhouse Reservoir on 24th July (D.G.A.). A pair of **Gadwall** were on Quarryford Pond, Gifford, on 14th May (A.M.), and a single female of this species on Loch Spiggie, Shetland, on 22nd July (W.St.).

A **Canada Goose**, in moult, was observed at Gladhouse from 18th June to 9th August (D.G.A., R.W.J.S.).

A **Golden Eagle**, mobbed by a **Merlin**, is reported from the Isle of Barra on 4th July 1957 (D.L.).

On 29th June a **Black-tailed Godwit** was seen at Loch Insh (B.A.H.C.).

Summer records of **Arctic Skuas** outside their nesting places seem to be on the increase and are of interest in view of possible extension of range. In Tay: one off Tentsmuir Point on 8th June; two off Monifieth on the 29th; and at least six in the Tay estuary between 29th June and 1st July (B.N.). In Forth: one at Aberlady on 16th June (D.H.) and two there on 8th July (T.B.).

Two immature **Little Gulls** were seen at Aberlady on 12th and 19th June (J.Bd.) and at Lundin Links there were six adults on the shore on 1st August (R.S.W.).

A pair of **Turtle Doves** again reared two young at Longniddry (W.B.).

A pair of **Barn Owls**, a scarce species in East Lothian, reared a chick in a tree near Gullane (W.B.) and a brood of three **Little Owls** were raised from the usual nest near Duns (W.M.).

The following records of the **Kingfisher** have recently been made in mid Argyll: one at the head of Loch Sween seen by a forestry keeper in March 1955; one seen at Ardrishaig by Miss Maureen MacIver in December 1959; and one seen by John MacCallum on the River Add under Kilmichael Bridge on 24th August 1960 (I.R.).

A **Carrion Crow** was shot near its nest in Strathcarron, Wester Ross, in May 1957 (P.D.).

It is now known that four pairs of **Stonechats** nested at Tullieallan, Fife, in 1960: cf. *antea* 1: 281 (J.H.).

Two **Grasshopper Warblers** were heard singing at Petersmuir, near Pencaitland, East Lothian, from 11th May to 14th June and in early July (A.M.). This summer there were no fewer than six male **Blackcaps** heard singing in various parts of West Fife (J.H.): cf. *antea* 1: 281.

Singing **Chiffchaffs** are reported from Orton, Morayshire, on

26th May and 2nd June (W.C., A.P.), and from the Falls of Forn in North Caithness—about as far north as it could get on the mainland of Scotland (M.M.). Chiffchaffs have been at Ardnashellach, W. Ross, since 1958 (P.D.). In Rhum the Chiffchaff has been seen and heard regularly in the springs of 1958, 1959 and 1960. Probably most pass further on, but in 1958 one remained singing until 18th May and in 1960 song was heard as late as 20th and 29th May, from two different birds. In 1959 breeding was proved when a Chiffchaff was seen feeding four fledged young behind the White House, Kinloch, on 30th June (P.W.).

A pair of **Pied Flycatchers** were regularly seen at Broughton, Peebles-shire, from 22nd May to the end of June (D.D.), while a nest with three or four newly hatched young was found in a hole in a silver birch tree at Rothiemurchus, Inverness-shire, on 19th June: the young were successfully reared (J.G.).

In July a pair of **White Wagtails** were seen feeding four juveniles in front of the Castle on Rhum, both on the 18th and the 20th: the mantle and rump of both parents was pale grey (P.W.). On 22nd July at Scalloway, Shetland, a **Pied Wagtail** was identified (W.St.).

A **Hawfinch** was seen sitting on a roadway at Carronbridge, Dumfries-shire, on 17th August (J.M.).

#### *Autumn Migration, 1960*

A **Red-necked Grebe** (in summer plumage) was at Aberlady on 27th August (T.B., R.W.J.S.), and another on the Sand Loch, Collieston, Aberdeenshire, on 17th September (E.A.G., R.W.J.S.). Two **Slavonian Grebes**, which may be the first for Clackmannan, were on the River Devon below Dollar on 24th September (R.J.W.S.) and single **Black-necked Grebes** were seen at Gladhouse from 14th to 28th August (D.G.A., R.W.J.S.), and at Cameron Reservoir, Fife, on 4th and 5th September (P.G.B., R.S.W.).

Unusually large numbers of **Red-breasted Mergansers** have been seen in the Forth in late summer and autumn: at Aberlady, 250<sup>+</sup> on 8th July and over 300 on 20th August (A.M.); at Musselburgh, 100 on 16th July, 200 on 18th September, and 400 by 2nd October (J.Bal.); at Skinflats, E. Stirling, over 250 in the first few days of October (J.H.).

Records of single **Scaup** inland come from Craigmaddie Reservoir, W. Stirling, on 18th September (P.G.R.B.) and on the 24th from Gladhouse (R.W.J.S.), where immature **Shelduck** have also been seen, two from 6th to 14th August, and six from 24th to 28th August (D.G.A., R.W.J.S.).

Two early **Pink-footed Geese** were flying south over Loch Leven on 3rd September (T.B., R.W.J.S.) and two, possibly the

same, were seen at Aberlady the same day (W.B., A.M.): also on the same day a **Whooper Swan** was seen on Loch Leven (T.B., R.W.J.S.).

**Marsh Harriers** seem to be becoming almost regular in Scotland, and it is to be hoped that they may establish themselves in some area where game is not preserved: one, a bird with a creamy head, was seen at Aberlady on 11th September (G.B., D.F.). Three **Hen Harriers**, all of them in brown plumage, have been reported from unfamiliar areas: on 19th September from the Moorfoots, Midlothian boundary (C.N.L.C.), from Fife Ness on 20th and 22nd September and 7th October (P.G.B., R.S.W.), and from Forrestfield, near Airdrie, on 16th October (W.St.).

Numbers of **Grey Plovers** between Grangemouth and Kincardine gradually built up until they reached about 100 on 3rd October (G.D., J.H., J.P.). Inland there were 4 at Gladhouse on 1st October (R.W.J.S.).

**Whimbrel** that were presumably summering were one at Barnes Ness, East Lothian, on 2nd July (R.W.J.S.) and three that passed July with Curlews at Musselburgh (J.Bal.). At Peppermill Dam, Fife, there were single birds on 8th, 9th and 11th September, and two on the 12th: the observers had not seen Whimbrel there before (G.D., J.P.).

Wading birds have been particularly numerous on passage this autumn, as the records below will show.

**Green Sandpiper.** Single birds at

Lossie Estuary, Moray, on 23rd July (W.C.),  
Cameron Reservoir, Fife, on 14th August, and two on the 15th (P.G.B., R.S.W.).

Gladhouse Reservoir, on 6th and 20th August (D.G.A., R.W.J.S.).  
Rosebery Pool, Midlothian, on 28th August (R.W.J.S.).

**Wood Sandpiper.** Single birds at

Tynninghame on 24th July and 13th August (T.B., R.W.J.S.).  
Gladhouse on 6th August (D.G.A.).

**Spotted Redshank** at

Findhorn Bay, Moray, two on 10th September, three on the 11th, heard calling on the 14th (W.C.).

Ythan Estuary, Aberdeen, five on 18th September, single birds on the 23rd and 30th, and the 3rd, 8th and 14th October (E.A.G., R.W.J.S.).

Cameron Reservoir, three on 4th, two on 5th September (R.S.W.).

Cult Ness, Fife, one on 19th and 25th August, two on the 27th (G.D., J.P.).

Longannet, Fife, one on 21st September (J.H.).

Skinflats, E. Stirling, two on 29th August, four on 18th September, two on the 19th, one on the 25th, and 2nd October, two on 3rd October (G.D., J.H., J.P.).

Gladhouse, one on 10th September (R.W.J.S.).

Records of the **Knot** inland come from Kinlochbervie, Sutherland, where one was seen on a loch two miles inland on 22nd August (J.Bal.) and from Gladhouse, where there were ten

on 24th July, four on 17th August, nine on the 20th, two on the 21st, one on the 24th and seven on the 28th, two on 10th September and six on 1st October—a late date for Gladhouse (D.G.A., R.W.J.S.).

As indicated in W. Crawford's note in this issue, numbers of **Little Stints** this autumn have been exceptional. The first recorded was at Skinflats, near Grangemouth, on 15th August, but peak numbers came suddenly on 18th September. The table of dates suggests no big influx after this.

Findhorn Bay, Moray, one on 14th September and about 106 (one hundred and six) on the 18th, 20th and 21st (W.C., A.P.).

Ythan district, Aberdeenshire: four on Forvie Moor on 17th September, two on Meikle Loch on the 18th, one on the estuary on the 21st and one on the Meikle Loch on the 25th (E.A.G., R.W.J.S.).

Fife Ness, single birds on 25th and 27th September (P.G.B., R.S.W.).

Cameron Reservoir, two on 20th September (Rev.R.I.M.).

Cult Ness, two on 27th August and 11th September, six on 20th September (G.D., J.P.).

Skinflats, one on 15th, 21st and 22nd August, five on the 29th, three on 3rd September, 18 on the 18th, 30+ on the 19th, 25th, 26th and 2nd October (G.D., J.P.). Maximum count 36 (J.H.).

Seafield, Leith, one on 18th September (A.T.M.).

Gladhouse, seven on 28th August, one on 10th September, nine on the 24th and three on 1st October (R.W.J.S.).

Musselburgh, two on 25th September (R.I.M.).

Aberlady, six on 3rd September, two on the 6th, 40 on the 18th, nine on the 21st, four on the 22nd, two on the 24th, 14 on the 25th, two on 1st October. The previous record number from Aberlady was thirteen (A.A., J.Bd., G.B., W.B., D.G., D.H., A.M., T.C.S.).

Tynninghame, one on 4th September, three on the 11th, 14+ on the 18th, 18 on the 25th, and six on 2nd October (T.B., R.W.J.S.).

Barnes Ness, twelve on 19th September (T.B.).

The numbers of **Curlew Sandpipers** recorded are not large, except at Skinflats where, it will be noted, the highest number (29) occurred on 18th September, as with the **Little Stints**.

Findhorn Bay, two on 10th September, five on the 11th, four on the 14th and two on the 18th (W.C.).

Ythan Estuary, one on 20th September (E.A.G.).

Cult Ness, one on 25th and 27th August and 11th September (G.D., J.P.).

Skinflats: numbers built up from one on 21st August to 14+ on 5th September and 29 on the 18th, then declining to 12 on the 25th and one on 3rd October (G.D., J.P.).

Gladhouse, one on 21st and 24th August, two on 10th September, one on the 14th and 24th (D.G.A., R.W.J.S.).

Aberlady, single birds on 10th August, 3rd, 21st and 24th September, two on the 25th and 1st October (A.A., J.Bd., W.B., D.H., T.C.S.).

Tynninghame, one on 21st August, the same day as first noticed at Skinflats and Gladhouse, one on 4th September, two on the 18th and one on the 25th (T.B., W.Sk., R.W.J.S.).

Three inland records of single **Sanderling** come from Gladhouse: juvenile on the 21st, and adults on 24th and 28th August (D.G.A., R.W.J.S.).

Records of the **Ruff** are also numerous this autumn:

Findhorn Bay, two on 21st August and four on 18th September (W.C.).  
 Ythan district, one on Meikle Loch on 17th September (R.W.J.S.).  
 Fife Ness, four on 20th September (R.S.W.).  
 L. Leven, one on 23rd July—the earliest of these records (T.B., G.D.,  
 R.W.J.S.).

Cult Ness, two on 4th August, one on the 7th and two on the 19th  
 (G.D., J.P.).

Skinflats, two on 8th August, four on the 15th, three on the 21st, five  
 on the 22nd and seven on the 29th, one on 5th September, four on the  
 18th, one on the 19th, three on the 25th, and one on the 26th, four on 2nd  
 October and three on the 3rd (G.D., J.P.).

Gladhouse, three on 6th August, then on the 9th (7), 14th (13), 17th (10),  
 20th (5), 21st (4), 24th (9), 26th (7), 28th (10), and 10th September (3),  
 14th (4), 24th (5), and on 1st October, two (D.G.A., R.W.J.S.).

Aberlady, single birds on 18th, 21st and 25th September (J.Bd., J.Bal.,  
 G.B.).

Tynninghame, one on 13th August (R.W.J.S.).

On 8th July a **Grey Phalarope** in full breeding plumage was  
 discovered at Aberlady, where it was also seen on the 14th  
 and 17th. On each occasion it was with flocks of terns. As one  
 approached, the terns would fly off and land further away, and  
 then the phalarope would fly off and land beside them again  
 (T.B., R.W.J.S.). What may very likely have been the same  
 Grey Phalarope, but in winter plumage, was seen at Aberlady  
 on 14th August: it associated with terns in precisely the same  
 manner as the earlier bird (A.T.M.). A third Grey Phalarope  
 was swimming on the Rubbish Dump Pool at Hamilton on  
 23rd October: it emerged on to dry land twice in about an  
 hour's watching (D.S. and other members of S.O.C.).

An adult **Long-tailed Skua** was seen at Aberlady on 20th Aug-  
 ust by members of the S.O.C. excursion: the bird was on the  
 ground and only fifteen yards off (R.W.J.S.): it was again seen  
 on 21st and 23rd August and 3rd September (W.B., A.M.).

An adult **Black Tern** in moult was seen on 4th August at  
 Lundin Links and Earlsferry (P.G.B., R.S.W.); two at Glad-  
 house on 24th August (R.W.J.S.); and an immature at Longan-  
 net, Fife, from 1st to 4th September (J.H., J.P.).

A party of 24 terns, mostly thought to be **Common Terns**,  
 went over Gladhouse on 24th August and on the 28th there  
 were 15+, mostly certainly Common (R.W.J.S.). There were  
 up to twenty **Roseate Terns** at Longannet in the last week of  
 August and first of September (J.H.), and a **Little Tern** at Gos-  
 ford on 8th October is unusually late for the species  
 (M.F.M.M.)

Gales brought many sea birds well up the Forth in early  
 October and six **Razorbills** were seen at Longannet on the 4th  
 (J.H.). A **Black Guillemot** (or Tystie) at Gullane Point on 17th  
 and 18th September is the first recorded for Aberlady Bay  
 (W.B., W.M.).

Three records of the **Hoopoe** in autumn have been received: the first from Edinburgh where one was seen on the hill at the top of the Zoo on 4th, 5th and 7th September (M.H.); G.W. informs us that there are no Hoopoes kept at the Zoo. The second was seen at Sanna, Ardnamurchan, on 25th September: it was grubbing about in the roots of marram grass on the sandhills (C.E.P.). The third is reported from Pitlochry at the end of September (A.L.C.). Descriptions have been received of these birds.

A **Wryneck**, the second for the reserve, was picked up at Aberlady on 28th August by Mr A. Campbell (N.C.).

A female **Blackcap** was seen at the Sand Loch, Ythan area, on 17th September (E.A.G.) and another female, perhaps a migrant, was trapped near Braid Valley Public Park, Edinburgh, on the 18th (J.A.S.).

A **Pied Flycatcher** was at the Sand Loch, Ythan area, on 17th September (E.A.G.).

The only reports of **Waxwings** so far come from Stonehaven, Kincardineshire, where small numbers were seen daily from 30th October until at least 11th November (W.Ba.) and Corpach, Inverness-shire, in the fourth week of October, when a party were seen (*per* M.R.).

It appears to be a "good year" for the **Great Grey Shrike**. There was one at Anstruther on 2nd Oct. (W.J.E., J.H.). One was seen on 16th October to the south-west of the Lake of Menteith: it moved in a series of flights towards the south-west and appeared to be a "bird on the move" (M.F., D.S.). At Fife Ness there was one on 25th October (R.S.). There was one at Whitekirk, East Lothian, on 30th October, seen by many members from the S.O.C. conference. It remained until at least 10th November (A.M., E.L.R.). And on 6th November one was seen at Cairnoch, Carron Valley, feeding on beetles which it picked off the ground, and a second (perhaps the same as that recorded on 16th October) near Wood End Farm, Flanders Moss. This bird, perched on posts beside the disused railway track, made several attempts to pounce on a Robin and a Reed Bunting, and the feathers and legs of another Robin which it had just eaten, were found on the ground close by. When its intended prey lay low under cover it hovered over the spot, then plunged vertically, head first, to drive out the fugitive. Both these shrikes were photographed (W.K.R.). Good views were had of a **Red-backed Shrike** at Tynninghame on 18th September (T.B., W.Sk.).

A **Siskin** was seen at Barnes Ness on 19th September and over twenty in the Ythan estuary area on the 18th (R.W.J.S.). On 1st October two big parties of **Redpolls**, totalling over 200,



were found a mile north-west of Gladhouse, filling a strip of young conifers and apparently feeding on seeds of rose-bay willowherb, heather and meadowsweet (R.W.J.S.).

Five **Lapland Buntings** were on the Aberlady saltings on 21st September and one was heard as it flew in from the north at Gullane Point on the 25th (J.Bal.).

### *Behaviour and Habits*

1960 has been a season of exceptional abundance of **Partridges** in Glen Esk, after the favourable summer of 1959. The highest record of breeding reported was near the Wester Cairn on Mount Battock, at about 2,000 feet above sea level. Here a pair, with eight or ten young, was seen in July and September by two Millden gamekeepers, W. Potts and W. A. Stewart. This is probably the highest that Partridges have been recorded nesting in Scotland (cf. Watson, *antea*: 1:186-7) and in September 1960 broods of Partridge and Ptarmigan could be seen on Battock within a few hundred feet of each other (D.J.).

On 14th May at Kelso a hen **Pheasant** was disturbed when sitting on eggs. The observer left the place in order to allow the bird to return to the nest but, on returning five minutes later, found that the eggs, fifteen in all, had been shifted about a foot further into the undergrowth and that the bird was sitting. The following morning the eggs were back in the original nest (M.McG.). In April 1960, between Peebles and Innerleithen, a cock Pheasant was several times seen to tread, or attempt to tread, domestic fowls in a hen-run (F.W.G.).

### *Earlier records*

On 17th October 1959 a very tired **Water Rail** was seen on the saltings at Aberlady—only the third recent record for the reserve (J.Bal.).

A **Wood Sandpiper** was seen at Aberlady on 14th and 15th May 1960 (J.Bd., A.M.).

On 20th April 1958 a **Spotted Redshank** in full summer plumage was seen feeding in a flooded field near the village of Lunan, Angus. This seems to be the first spring record for Angus and the third for the county (J.G.).

Two **Curlew Sandpipers** were at Aberlady on 12th June 1960 (J.Bd.).

A **Hoopoe** remained in a garden near Thornhill, Dumfries, for the whole of 10th May 1960 and was seen by a large number of local ornithologists (J.M.).

## The Scottish Ornithologists' Club

### REPORT OF COUNCIL — SESSION XXIV

1959 - 1960

The Council have the honour to submit the following Report for the past year:—

**DEATH OF DR E. V. BAXTER and MR T. LESLIE SMITH:** During the Session the Club suffered the loss of Dr E. V. Baxter, Honorary Vice-President of the Club, and of Mr T. Leslie Smith, representative Member on the Council for Dundee. The Council records with gratitude the generous legacy of £1,000 received by the Club from Miss Baxter's estate, the interest to be used for the promotion of Ornithology in Scotland; and also the gift of a large number of books from the Library of Mr Smith.

**MEMBERSHIP:** It is satisfactory to be able to report an increase in the Club Membership this year. 159 Members were lost this Session due to resignation or unpaid subscriptions, while 192 new Members were enrolled. Comparative figures are as follows:—

	31/8/56	31/8/57	31/8/58	31/8/59	31/8/60
Ordinary	755	723	738	747	781
Junior	132	132	148	140	141
Honorary	11	11	11	7	5
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	898	866	897	894	927

**COUNCIL MEETINGS:** Four Meetings of Council were held during the Session.

**GENERAL MEETINGS:** A full programme of Lectures was carried out during the winter in five Branches. The Council wishes to express its thanks to all the Lecturers who gave so freely of their services, and would also like to thank Branch Officials for arrangements and hospitality.

**EXCURSIONS:** Apart from Excursions organised by the Branches to various places of interest during the summer months, the Club also organised weekend Excursions to Dumfries in February and to Aviemore in May.

**CONFERENCE:** A very successful Annual Conference and Annual Dinner were held in October in Stirling, when a record number of Members and Guests attended.

**"SCOTTISH BIRDS":** Four numbers of the Club Journal were published during the Session, including one double number. Copies of the Journal were sent to a number of Libraries, Museums and Ornithological Societies not only in Britain but also in America, Australia, Belgium, China, Denmark, Germany, Holland, Norway and Poland. Exchanges arranged with British and Overseas Journals have added to the number of up-to-date scientific Journals in the Club Library.

**SCOTTISH BIRD RECORDS COMMITTEE:** The Council appointed Dr James W. Campbell to replace the late Dr E. V. Baxter as Convenor. The Committee met during the Session to adjudicate on records published during the year, and the Review for 1959 is published in "Scottish Birds."

**SCOTTISH CENTRE FOR ORNITHOLOGY AND BIRD PROTECTION:** The establishment of the Scottish Centre was made possible by a grant of £4,000 to the Fair Isle Bird Observatory Trust by an anonymous donor. The premises were purchased by the Trust and various alterations were carried out in order to provide accommodation for the S.O.C. and the R.S.P.B. on the ground floor, with private living quarters for the Water-

stones above the offices. The balance of cash following the purchase of the premises was used to cover the cost of alterations. It has been agreed between the Trust and the Club that, after meeting all annual charges and maintenance out of rents received, any surplus will be credited to a "House Fabric Fund" as a reserve for contingencies in connection with the property. Until this Fund reaches £1,000 the Club will contribute to it the sum of £50 a year. The state of this Fund is shown with the Club Accounts. The Trust have granted a full repairing lease to the S.O.C. at a nominal rent, and the S.O.C. after taking independent advice, have granted sub-leases to the R.S.P.B. for their Offices and to the Waterstons for their private quarters at an annual rent of £100 in each case, the S.O.C. being responsible for paying the whole rates and other outgoings.

The Council have pleasure in reporting a successful first year at the new Centre, which was officially opened in October 1959 by the Earl of Wemyss and March in the presence of a gathering of representatives of ornithological organisations in Scotland, England and Ireland. A large number of people, including visitors from Australia, Austria, Belgium, Canada, Denmark, Germany, Italy, Rhodesia, Sweden and the West Indies, have visited the Centre during the Session, and the office has dealt with numerous enquiries about bird-watching holidays and other facilities. Informal meetings for Juniors and others were held in the Library during the winter, and a week-end Conference of the Junior Bird Recorders' Club was held at the Centre in April.

**CLUB LIBRARY:** During the year a large number of books and Journals were received in addition to the 200 volumes from the Library of the late Mr T. Leslie Smith. Both Reference and Lending sections have thus been extended, and the Council records its thanks to all those who have presented both old and new books to the Library. A Library Fund has been established for the purchase of new books and Journals.

**PUBLICATION:** During the Session the Club sponsored the publication of "The Birds of Aberlady Bay Nature Reserve," by F. D. Hamilton and K. S. Macgregor, as a reprint from the "Transactions of the East Lothian Antiquarian and Field Naturalists' Society." This publication, which is on sale to Members and others, will be of considerable value to ornithologists who visit the Reserve.

**REPRESENTATION:** Dr Berry officially represented the Club at the Conference of the International Union for the Conservation of Nature held in Poland in June. Mr George Waterston continues to represent the Club on the Council and Scientific Advisory Committee of the British Trust for Ornithology.

For the Council,

CHARLES G. CONNELL,

President.

## TWENTY-FOURTH ANNUAL GENERAL MEETING

The Twenty-Fourth Annual General Meeting of the Club was held in the Marine Hotel, North Berwick, on Saturday, 29th October 1960. An attendance of over a hundred Members was presided over by Sir Charles G. Connell, President of the Club.

**MINUTES:** The Minutes of the Twenty-third Annual General Meeting, held at Stirling on 24th October 1959, were read and approved.

**REPORT OF COUNCIL:** (See preceding page). This was submitted by the Chairman. In moving the adoption of the Report, the Chairman said that the Council hoped to publish shortly a "Check-list of the Birds of Duddingston Loch Bird Sanctuary" which would be issued free to Members as a special supplement to "Scottish Birds." Arrangements would also

be made in the near future for indexing the Journal, and for making binding facilities available. He also drew the attention of the Meeting to the recent award of the Silver Medal of the R.S.P.B. to Lt. Col. J. P. Grant, Member of Council, for outstanding services to bird protection. The Report was adopted.

**TREASURER'S REPORT:** In presenting the Accounts, the Hon. Treasurer pointed out that the reduction in the overall surplus of the Revenue Account this year was due to extraordinary expenditure in connection with the completion of the move to 21 Regent Terrace, the publication of "The Birds of Aberlady Bay Nature Reserve," and also to a larger allocation of funds for "Scottish Birds." Deeds of Covenant for subscriptions to the Club had now been approved by Inland Revenue, and he stressed the advantage to the Club of this form of subscription. Already over 60 Deeds of Covenant had been signed, bringing in additional revenue of over £45. Interest from the late Dr E. V. Baxter's Endowment, which had been invested in The Equities Investment Fund for Charities, would be available in the coming year. A sum of £500 from the accumulated overall surplus of £818 shown in the Balance Sheet at present in the Edinburgh Savings Bank at 3% interest would be transferred to Defence Bonds at 5% interest.

Mr D. G. Andrew, Hon. Treasurer of the House Fabric Fund, presented the first accounts of this Fund, and pointed out that of the £4,000 received by the Fair Isle Bird Observatory Trust, £3,000 had been applied to the purchase of the premises, and of the remaining £1,000, the sum of £944 had been used in alterations. The Accounts showed a healthy position; but the decision of Council to re-wire part of the electrical installation of the premises would reduce the surplus in the coming year. Both these Accounts were approved.

**APPOINTMENT OF AUDITOR:** Mr Arthur Walker, C.A., was re-elected Auditor for the ensuing Session.

**ELECTION OF PRESIDENT:** The Council's recommendation that Professor M. F. M. Meiklejohn be elected President of the Club to replace Sir Charles G. Connell, who had completed his term of office, was approved.

**ELECTION OF VICE-PRESIDENT:** The Council's recommendation that Dr Ian D. Pennie be elected Vice-President of the Club in succession to Professor Meiklejohn was approved.

**ELECTION OF COUNCIL MEMBERS:** The Council's recommendation that Dr James W. Campbell and Dr W. J. Eggeling be elected to Council to replace Dr Ian D. Pennie on his election as Vice-President, and Dr John Berry, who was due to retire by rotation, was approved.

**FAMILY MEMBERSHIP SUBSCRIPTION:** The following alteration to the Club Constitution was unanimously approved:— Add to 3. MEMBERSHIP (e): "Married couples shall be eligible for joint Membership at an annual subscription of 40s and shall enjoy all the usual privileges of Membership with the exception that they shall be entitled to receive only one copy of "Scottish Birds" (Club Journal), and any other literature circulated by the Club between them."

**MIGRATION RESEARCH BY RADAR:** At the invitation of the Chairman, Dr W. R. P. Bourne of the Edward Grey Institute, Oxford, asked Members to send him any observations on movements of migrants or sudden influxes of birds which might assist him in the interpretation of migration movements seen on the radar screen.

**WHOOOPER SWAN ENQUIRY:** Miss Betty Garden spoke briefly about the Whooper Swan Enquiry sponsored by the B.T.O. and the Wildfowl Trust.

**PEREGRINE ENQUIRY:** Dr R. A. Ratcliffe of the Nature Conservancy

appealed for the support of Members in the B.T.O. Peregrine Census Enquiry.

"THE ISLE OF MAY": The Chairman drew Members' attention to the advance copy of a new book on "The Isle of May" by Dr W. J. Eggeling, which would be published on 9th November. The publication of this book has been very much an act of faith on the part of the publishers as the sales of a specialised work of this kind are bound to be small. He hoped that if Members felt that the publication of excellent works of reference of this kind was something really worthwhile, they would support it by purchasing copies.

VOTES OF THANKS: The Chairman asked the meeting to accord a hearty vote of thanks to the Secretary for her organisation of the Conference, and to those who had been responsible for the various Exhibitions on view—to Dr David Jenkins and Dr Adam Watson for the Exhibit of the Red Grouse in Scotland Enquiry; to Dr George Dunnet and his assistants for the Fulmar Exhibit; and to Mr T. Scott Kelly, Mr Quintin Mitchell, Mr Ritchie Seath, and Mr Arthur Ablett for loaning the fine original paintings by Archibald Thorburn, Philip Rickman, and Edwin Alexander. This was warmly accorded.

Professor Meiklejohn asked the Meeting to accord a special vote of thanks to the retiring President, Sir Charles G. Connell, for the immense amount of work and interest he had taken in Club affairs during his term of office, particularly in connection with the establishment of the new Centre which owed so much to his inspiration and help; and also to Lady Connell for her hospitality and interest. This was very warmly accorded.

#### Revenue Account for the year ended 31st August 1960

	Year to 31/8/60	Year to 31/8/59
<b>INCOME:—</b>		
Subscriptions received during year ... ..	£1014 12 6	£1011
Income from Miss L. J. Rintoul's and Dr E. V. Baxter's Endowments ... ..	65 17 11	40
Savings Bank interest ... ..	16 3 9	13
Sale of Badges and Field Lists ... ..	10 12 10	6
	<u>£1107 7 0</u>	<u>£1070</u>
<b>EXPENDITURE:—</b>		
Hire of Lecture Halls and equipment ... ..	£96 17 7	89
Lecturers' expenses ... ..	76 8 9	53
Postages, printing, stationery and sundry expenses	115 11 2	102
Secretarial services ... ..	338 7 8	353
Scottish Centre for Ornithology and Bird Protection—		
Opening Ceremony expenses less donations £12	3 0 4	—
Furniture and equipment including telephone installation, curtain material, paraffin heater, fire extinguishers, light fittings and film screen	73 8 9	116
Annual contribution to House Fabric Fund ...	50 0 0	—
Heating and lighting, telephone and cleaning attributable to the Club ... ..	43 13 5	—
Production and distribution of Scottish Birds Vol. I Nos. 5-8 Cost ... ..	£335 12 10	
Less—Sales to non-members £54; receipts from advertisements £84, 9/6	138 9 6	171
	<u>197 3 4</u>	<u>171</u>

Subscriptions to Council for Nature, B.T.O., R.S.P.B. and I.C.P.B. ... ..	5 2 0	10
Conference net cost ... ..	16 15 4	40
Contribution to Library Fund ... ..	10 0 0	--
Purchase of Field Lists ... ..	4 7 4	--
Publication of Birds of Aberlady Bay Report Cost ... .. £86 18 4		
Less--Contribution from The Edinburgh Bird Bulletin £30 and sales £10, 10s 40 10 0	46 8 4	--
	<u>£1077 4 0</u>	<u>£934</u>
<b>Surplus for year carried to Balance Sheet</b> ...	30 3 0	136
	<u>£1107 7 0</u>	<u>£1070</u>

**Library Fund Account for the year ended 31st August 1960**

	As at 31/8/60	As at 31/8/59
Donations received ... ..	£16 10 6	—
Sale of duplicate copies ... ..	12 15 0	—
Contribution from Revenue Account ... ..	10 0 0	--
	<u>£39 5 6</u>	<u>--</u>
Less--Purchases ... ..	4 19 2	--
<b>Surplus for year carried to Balance Sheet</b> ...	<u>£34 6 4</u>	<u>—</u>

**Balance Sheet as at 31st August 1960**

	1960	1959
Surplus at 31st August 1959 ... ..	£818 3 4	682
Add--Surplus for year per Revenue Account ...	30 3 0	136
	<u>£848 6 4</u>	<u>818</u>
Library Fund--Surplus for year per Account ...	34 6 4	—
Endowments (the free annual income of which is available for the advancement of ornithology)		
Miss L. J. Rintoul's Endowment ... ..	1000 0 0	1000
Dr E. V. Baxter's Endowment ... ..	1000 0 0	—
	<u>£2882 12 8</u>	<u>1818</u>
Cash in Edinburgh Savings Bank ... ..	£859 9 10	693
Cash in Royal Bank of Scotland Current Account	23 2 10	101
Cash in hand ... ..	0 0 0	6
Debt due to the Club for advertisements in Scottish Birds ... ..	0 0 0	18
	<u>£882 12 8</u>	<u>818</u>
£1151 3¼% War Stock at cost ... ..	1000 0 0	1000
976 units The Equities Investment Fund for Charities at cost ... ..	1000 0 0	—
	<u>£2882 12 8</u>	<u>1818</u>

EDINBURGH, 25th September 1960.—I have examined the foregoing Revenue Account and Balance Sheet of the Scottish Ornithologists' Club for the year ended 31st August 1960, and certify that in my opinion they are correctly stated and sufficiently vouched.

(Signed) ARTHUR WALKER, C.A.

**House Fabric Fund — Summary of Accounts for period  
29th June 1959 to 31st August 1960**

RECEIPTS

Grant from anonymous donor—£4000 whereof £3000 applied towards purchase of 21 Regent Terrace, and balance, after deduction of purchase expenses, received from Messrs J. & F. Anderson for credit of this Fund	... ..	£950 0 0
Rent from Royal Society for the Protection of Birds at £100 p.a. for period 1 Oct. 59 to 11 Nov. 60	... ..	111 4 8
Rent from Mr and Mrs Waterston at £100 p.a. for period 15 Aug. 59 to 11 Nov. 60	... ..	125 0 0
Annual contribution from S.O.C. Revenue Account	... ..	50 0 0
Miscellaneous interests	... ..	5 13 6
		£1241 18 2

EXPENDITURE

Repairs and alterations	... ..	£944 12 11
Property burdens—		
Rates	... ..	£75 10 11
Feuduty	... ..	10 2 10
Gardens Assessment (2 yrs.)	... ..	16 0 0
Schedule "A" Tax on feuduty	... ..	6 7 10
Insurance	... ..	13 14 6
		121 16 1
Miscellaneous payments	... ..	2 17 6
On deposit with Edinburgh Mutual & Dunedin Building Society	... ..	£238 9 4
Less balance due to Messrs Fraser, Stodart & Ballingall, W.S.	... ..	65 17 8
		£172 11 8

5th October 1960.—I have examined the foregoing Accounts of the House Fabric Fund of the Scottish Ornithologists' Club for the period from 29th June 1959 to 31st August 1960 and certify that in my opinion they are correctly stated and sufficiently vouched.

(Signed) ANDREW T. MACMILLAN, C.A.

**DEEDS OF COVENANT**

The Club has now been recognised as a charity by the Inland Revenue. This means that Members who pay Income Tax at the full rate on some part of their income can greatly benefit Club funds at no extra cost or inconvenience to themselves by taking out seven-year Deeds of Covenant in respect of their subscriptions. The reclaim of tax is carried out by the Club office and the Secretary will ask Members each year to sign and return a completed Certificate for Deduction of Tax. This reclaim on a subscription of twenty-five shillings will bring in over fifteen shillings per annum as additional income to the Club.

Members who have not already paid their subscriptions for the current year and also those who have already done so are urged if possible to sign a Deed of Covenant for their subscription, for which an appropriate form may be obtained from the Secretary. There has already been an encouraging response and Members who have signed Covenants are warmly thanked for their help.

### FAMILY MEMBERSHIP

Members are asked to note, in the Minutes of the Annual General Meeting of the Club held on 29th October 1960 which are published in this issue, that an alteration to the Club Constitution under MEMBERSHIP (c), to include a Family Membership subscription, is now effective and is available to Members who wish to take advantage of this type of subscription.

### WEEK-END EXCURSION TO DUMFRIES

Arrangements have again been made this year with the County Hotel, Dumfries, for a weekend Excursion to the Solway to see the geese.

Accommodation has been arranged for the weekend 17th to 19th February 1961 at inclusive terms of £4 per person as follows: Bed on Friday night 17th; breakfast, packed lunch, dinner and bed on Saturday 18th; breakfast and packed lunch on Sunday 19th.

Members wishing to come on this Excursion should book direct with the Manager, The County Hotel, Dumfries (Tel. 146) mentioning that they are Members of the Club; they may also bring guests. Arrangements for transport by private cars to Dumfries should be made with Branch Secretaries. It is advisable to bring warm clothing and thermos flasks, and if possible, gum boots.

It is regretted that owing to the difficulty of obtaining suitable dates for this Excursion it has been impossible to avoid coinciding with the date of the St Andrews Branch Meeting.

### SPECIAL MEETING FOR JUNIOR MEMBERS

A special combined Meeting for Junior Members of the Club and Members of the Junior Bird Recorders' Club for the R.S.P.B. will be held in the Scottish Centre for Ornithology and Bird Protection, 21 Regent Terrace, Edinburgh 7, on Wednesday, 28th December, 1960, at 7 p.m.

The programme will include special exhibitions, a Bird Quiz, films and refreshments. Junior Members must inform the Secretary not later than 26th December if they intend to be present and whether they would like to exhibit anything.

### "THE BIRDS OF ABERLADY BAY NATURE RESERVE"

Members are reminded that this publication, by F. D. Hamilton and K. S. Macgregor, is on sale in the Club Office, price 5s (5s 4d post free). This is an invaluable work of reference for anyone who is interested in the Reserve, and by supporting it Members will enable the Club to provide similar useful publications in the future.

### OPERATION OSPREY, 1961

The R.S.P.B. will once again require the assistance of volunteer wardens between 1st April and mid-August to guard the Ospreys at Loch Garten and to act as Guides to the public visiting the Observation Post in the Sanctuary area. Wardens will be accommodated at a Base Camp where food, tents and camp equipment will be provided free. Each person is however expected to bring his own sleeping bag and pillow slip. Provided a sufficient number of Wardens are available, preferably for periods of not less than a week at a time, each one will have every third day free of duties. A succession of female cook-caterers will also be required for the period.

Anyone wishing to assist should send full details and references as soon as possible to Mr George Waterston, 21 Regent Terrace, Edinburgh 7.



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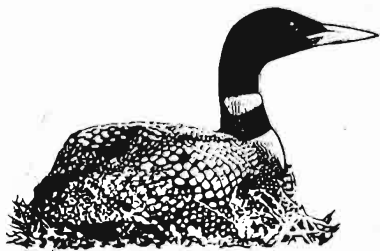
## "A Real Paradise for Birdwatchers"

**T**HE enormity of the landscapes and the ever recurring contrasts of Icelandic scenery have a unique attraction to tourists and bring them back again year after year. And to the ornithologist, it is a veritable treasure house. It has often been referred to as "a real paradise for bird-watchers" because of its wealth in bird-life. About 70 species nest there and more than 200 have been observed. Most of the birds that flock in Iceland find there a land of peace where they are protected by the unwritten law of kindness; consequently they are tamer there than in most other places.

Although Iceland is not an arctic country, some true arctic birds can be studied there such as the Little Auk, the Purple Sandpiper, the Grey Phalarope, Brunnich's Guillemot and the long-tailed duck. The Sea-eagle is still found there and the famous Iceland Gyr-falcon is not uncommon. A Snowy Owl flapping over a pitch black lava stream is an impressive sight. Even the capital, Reykjavik, has some interesting bird inhabitants. On an islet in the Lake Tjornin, the Arctic Tern breeds in great numbers. Red-necked Phalaropes often flock on the lake which is also alive with ducks of many species. An hour's drive from Reykjavik to the old seat of the Icelandic Parliament at Thingvellir may result in the thrilling sight of the Great Northern Diver which breeds nowhere else in Europe. A flight of half an hour brings the ornithologist to the rich bird cliffs of the Westman Islands. The rocky island, Eldey, off the Reykjavik peninsula, is occupied by about 15,000 pairs of North Atlantic Gannet, the largest single colony of this species in the world. On the oases south of Hofsjokull, is the world's largest breeding colony of the Pinkfooted Goose.

Lake Myvatn in northern Iceland has been called the Mecca of bird watchers. This five mile by eight mile lake, which is also renowned for its unrivalled scenic beauty, has the largest concentration in Europe of breeding ducks. Fifteen species nest there; two of them, the Barrow's Goldeneye and the Harlequin Duck, nest nowhere else in Europe outside Iceland.

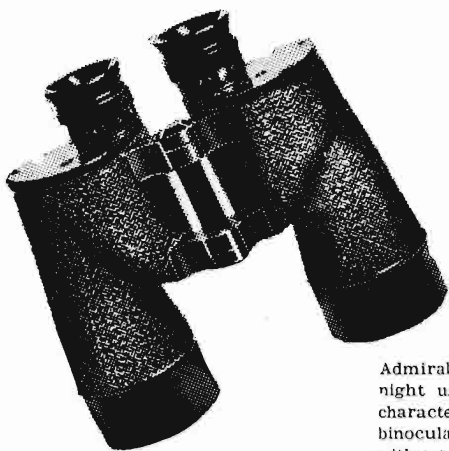
The total number of ducks and ducklings on the lake in late summer has been estimated at 140,000. At Myvatn, a unique form of peaceful co-existence between man and bird has developed through the ages. On the idyllic island of Slutnes, in order to look at their eggs, one has to lift some of the ducks from their nests.



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*Foreword by* V. C. WYNNE-EDWARDS

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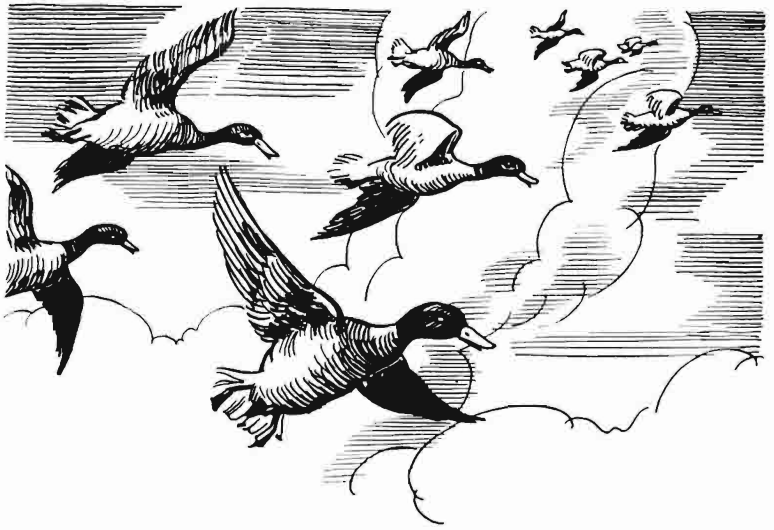


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