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Vol. 2

No. 7

**FAIR ISLE BIRD OBSERVATORY
BULLETIN**



Edited by
KENNETH WILLIAMSON
Director

Issued to the Friends of Fair Isle

Subscription, £1, 1s. per year

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YOUNG FULMARS: Interval between Last Feed and First Flight

Nest Number	25th	26th	27th	28th	29th	30th	31st	1st	2nd	3rd	4th	5th	6th	Interval (Days)
2	F	.	.	.	.	.	.	.	.	.	.	.	.	$3\frac{1}{2}$
9		B		F	.	.	.	.	.	.	.	.	.	$3\frac{1}{2}$
11	F	.	.	.	.	.	.	F	.	.	.	.	.	$4\frac{1}{2}$
12		F	.	FF	.	.	.	.	.	.	.	.	.	8
13	F	.	.	.	.	.	.	.	.	.	.	.	.	$3\frac{1}{2}$
16			F	.	.	.	.	.	.	.	.	.	.	3
A	B		B	B	B	B	B	B	F	.	.	.	.	1
B			F	.	.	.	.	.	.	.	.	.	.	2
D	?F	.	.	.	.	.	.	.	.	.	.	.	.	?3
G		F	.	B	.	.	.	.	.	.	.	.	.	6
F			F	L	.	.	.	.	.	.	.	.	.	$1\frac{1}{2}$
P		F	.	.	.	.	.	.	.	.	.	.	.	9
Q						F	.	.	F	.	.	.	.	$6\frac{1}{2}$
R			F	.	.	.	.	.	.	.	.	.	.	3
T					FF	F	.	.	.	.	.	.	.	$3\frac{1}{2}$
V			F	.	L	.	.	.	.	.	.	.	.	1
W	FF	.	.	FF	F	.	.	.	.	.	.	.	.	$7\frac{1}{2}$
Y	F	B	.	.	.	.	.	.	.	.	.	.	.	$7\frac{1}{2}$
Z		FF	.	.	.	.	.	.	.	.	.	.	.	$8\frac{1}{2}$

(L on 8th)

89. The "Starvation Theory" and the Young Fulmar.

KENNETH WILLIAMSON
and GORDON CORBET.

For a long time there has been a strong belief in this country that the young Fulmar Fulmarus glacialis is deserted by its parents at the age of 5 or 6 weeks, and left to last out the remainder of its 8-weeks' fledging-period subsisting on its stored reserves of body-fat.

This belief in a "starvation period" did not originate in this country, nor did it originate with reference to the Fulmar. It seems to be yet another of many instances of a statement by one writer being freely copied by others who did not take the trouble to check its validity, until it gained such a weight of authority as to command general acceptance as "a proved fact". It appears to have been applied in the first instance to the Wandering Albatross Diomedea exulans by Hutton (1865), and repeated by Buller (1888, 1905), and to have been adopted for the Fulmar and other members of the Procellariiformes (by analogy ?) at a much later date. The history of the "starvation theory" in so far as the albatrosses are concerned has been given by Richdale (1954 a) and need not be repeated here. He has shown beyond doubt that it is without validity in the Royal Albatross D. epomophora and also the Sooty Shearwater Procellaria grisea (Richdale 1954 b).

Certain circumstances which attended our observation of the later part of the fledging-life of the young Fulmars at Fair Isle in August 1953 (Williamson et al. 1954) made us suspicious of this theory, but the circumstances were hardly strong enough to warrant our rejecting it. As a result, some of the conclusions we drew from our 1953 work were based on a tacit acceptance of the "starvation" idea, and we now know that those conclusions are false.

In 1953 our main purpose was to chronicle the last few hours of the chick's life on the ledge and the manner

of its departure from the cliff. We were aware that all the young were visited from time to time by adults, so in this restricted sense at any rate they were not deserted. However, there was no proof that these adults were parent birds, although it seemed likely that some of them were, and in only three cases did we secure information on the length of the interval between the last feed and the first flight of the young. These intervals were 10 days, 4 or 5 days, and 2 days respectively, but the last case was not a good one as this chick was forced by adult interference to leave its ledge prematurely.

We returned to the problem in 1954 more concerned with trying to elucidate the parent-young relationship, - a difficult task when hardly any of the adult birds are individually recognisable. Many more feeds were noted than in 1953, and to cut a long story short we found that there is no such phenomenon as a "starvation period", at any event in the majority of cases. It is necessary to qualify the statement because there were one or two young which were on their ledges for a week or so following the commencement of watching, and which we did not see fed by adults at any time. Indeed one, no. 15, was not even visited by an adult - so far as we know - between August 25th and the morning of 31st, when he flew. However, this is no proof that he and others like him were not visited, or even fed, since our watches normally began after 0900 hrs. and ceased about 1900 hrs., while there were some days on which it was not possible to maintain a continuous watch between these times.

There can be no doubt, therefore, that we missed a good many feeds, probably mostly in the early morning, but also perhaps in the late evening or during the night. And although the evidence summarised in the Table on p. 286 is perhaps a sufficient denial of the existence of a period of starvation, it is unquestionably incomplete, and needs further strengthening by at least one more season's work. Furthermore, there is still a good deal to be learned from this later part of the breeding-season, not only concerning

the parent-chick relationship, but also about the many apparent non-breeders whose activities are the youngster's constant concern; and for these reasons it is not proposed to discuss the matter in any detail until more field-work has been done.

A few words should be given in explanation of the Table. Only those chicks are included for which at least one feed was recorded. Sometimes, when a youngster accepts a visitor, it will beg, but its pleadings will go unheeded; recorded cases of unrequited begging are shown by the letter "B". Whilst there seems to be a marked reluctance on the part of some adults to satisfy the chick (nest A gives a shining example of this!) there are cases in which the opposite is true and no amount of parental caressing will stimulate the youngster to demand food. Generally, however, the youngster begs with a churring note immediately the parent has settled beside it, and feeding takes place: it is not usually a protracted business, and the adult may be ashore for a few minutes only. All observed feeds are shown as "F" and the subsequent departure of the chick on its maiden flight is indicated by "L". Each day is divided into forenoon and afternoon.

Summarising the Table, we find that F departed within half-a-day of receiving his last feed; A and V one day later; B two days later, and several others after 3 to $4\frac{1}{2}$ days. There are longer periods ranging from 6 to 9 days and in these instances we may have missed one or more feeding-visits. In any event, one is left to wonder if a spell of up to a week can be said to constitute a "period of starvation" for a bird like the Fulmar; for after all, adults regularly go without food for a similar length of time during the incubation period (Williamson 1952).

Finally, all the maiden flights observed in 1954 were "deliberate" departures. Attempts at interference by adults (now believed to be non-breeders) were seen often, but in no case was a chick dislodged from its ledge during exercise. Again we noted that the ledges were "reclaimed",

often within a short time of the departure of the chick, but we now believe that in most cases at any rate these claimants are again non-breeders. We think the parents do return, and we think we can now recognise them when they do by a certain pattern of behaviour. But this is one of the aspects of fulmarology which must be reserved for another season!

Of 36 chicks for whom we recorded a departure-time, twice as many left in the forenoon as in the afternoon, and the lowest activity was between mid-day and 1500 hrs. The first recorded flights were two on Aug. 24th, and the last to leave, W (he was fed more frequently than any other during the end-of-August watch), flew on September 8th. There were two departure "peaks", most of the 38 youngsters going on August 28th (10), with a few only on 29th (4), and a minor "peak" a few days later, September 2nd, when 5 birds left the cliff.

Pair B, one of which is a "blue" Fulmar, again reared a greyish-blue youngster as in 1953, though this season's chick was not quite so dark in plumage.

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90. Winter Notes from Foula.

Perhaps the most interesting feature of Foula, "the isle of birds", in the winter months is the almost complete lack of bird-life. But as the Skylarks - and even the Snow Buntings - are singing again it seems an appropriate time to put on record my impressions of Foula over what has undoubtedly been an exceptionally severe winter.

The autumn passage virtually came to a stop at the end of October with a Black Redstart on 29th. On the same date the bulk of the Redwings and the Fieldfares left, heading south at dusk in parties of 50 or 60 at a time. A passage of Blackbirds in the last two days of the month coincided with an influx of Snow Buntings, but by November 3rd there seemed to be only the latter species remaining, and even Starlings and Twites were reduced in number. Snow Buntings peaked on November 11th when I reckoned there were over 1,000 in the crofting area on the east side of the island.

The only migrants in November were a Woodlark on the 4th, which came in company with a ♀ Chaffinch (and brought back vivid memories of watching these two species of diurnal migrants passing in large numbers together in southern Norway); two Wood Pigeons on 8th; one or two Short-eared Owls on 12th and 13th, and two Robins. Five Whooper Swans on the Mill Loch on 7th, and Glaucous Gulls on 7th, 15th, 26th and 30th helped keep up the interest, but the weather was as unfavourable for winter visitors as for the ornithologist.

The period from November 22nd to 25th was one of continuous gale force winds and rain. There was then one day of calm on 26th before the gales returned and the wind was seldom less than "strong" until December 7th. Observation conditions in such weather are

almost hopeless, and it is probable that a calm day like the 26th gives a false impression of producing a number of birds, the real explanation being that it is again possible to go out and see them! However, a party of 10 Rooks were obviously storm-blown from the south as they have a reputation here for appearing after a southerly gale. I flushed a Woodcock on the way to school, and two Lapwings, 7 Oyster-catchers and a Black-headed Gull were new arrivals. Common Snipe were more numerous and a Jack Snipe was also seen. At the end of the month I failed by inches to trap a small rail which flew out of the bushes at the entrance to the Heligoland Trap, but of which I got only a brief glimpse before it disappeared for good. It was too brown and short-billed for a Water Rail and too dark for a Corn-crake, but that is as close as I could get towards identifying it.

A single ♂ Chaffinch and the first Linnet for the island were the only December visitors, on the 3rd (a day on which a Bittern and a Little Gull were noted at Fair Isle). Thereafter we had to be content with the resident winter population, which maintained its numbers in spite of a stormy December, but became sadly depleted in the blizzards of January and February. The worst hit were undoubtedly the smaller passerine species, especially the Wren, Rock Pipit and Twite. I have not seen a single bird of these three species, except one lone Twite, which is normally our commonest finch and plentiful in the crofting area, since the snow went. Blackbirds and Starlings, our most numerous winter residents dependent on the land, have survived remarkably well, although a number came to grief and all were very tame. The Starlings would crowd into my hen-house to escape the bitter north wind and driving snow, and at times as many as 30 would pour out of the narrow door when I came to feed the hens. A few of each species were retrapped or recovered in the snow and it was of interest to note that 3 out of 6 Blackbird rings found

were on birds ringed as nestlings last summer, whereas none of the 7 Starlings recovered were among the 99 nestlings ringed in 1954. By comparison, only 27 Blackbirds were ringed as nestlings, so my first guess would be that the Blackbird population is stationary but that many young Starlings may leave for the winter.

The other passerine species which are resident throughout the winter are a few Ravens and Hooded Crows, which must have done well off dead sheep, - House Sparrows and Rock Doves, which appear to have maintained their numbers, - a very few Skylarks and a single Robin. With the exception, perhaps, of the smaller waders the other birds seem to have survived well. Fulmars, Shags, Eiders and Black Guillemots are common. Gulls vary in numbers, but Greater Blackbacks and Herring Gulls are always about and Glaucous and Common Gulls appear occasionally. Woodcock seem to have been present most of the winter, and they appeared round the crofts in the hard weather. The Turnstones and Purple Sandpipers feed on the tide-line, and more often on the fields in fair numbers, the latter species looking particularly out of place. This appears to be a local habit of which I can find no record elsewhere, and it does not appear to be dependant on the state of the tide as one might expect. * Snipe are also common, and often in typical Foula weather the whole isle would appear to be a suitable feeding-ground for them!

Foula is an extremely difficult place to work single-handed, especially in the winter when I have to spend the bulk of the daylight hours indoors in the school. Even if one had unlimited time it would be difficult to assess the bird-numbers in an area of over 4,000 acres; and the apparent rise and fall in the numbers of the

* We have seen this behaviour frequently in winter in the Faeroe Islands: see Ibis (1947) pp. 114-115. (Ed.).

resident species, and also of the passage-migrants, are not guaranteed to be more than apparent. However, the complete disappearance of certain species over a period of time speaks for itself, and there are also a number of birds which are quite clearly sporadic visitors only. During the winter the following have occurred occasionally: Heron, Mallard, Long-tailed Duck, Cormorant (as a rule ailing birds seen inland), Curlew, Redshank, Oyster-catcher, Lapwing, a single Merlin, and Snow Buntings in parties of up to 20.

The mail crew reported seeing large numbers of Little Auks between the island and Walls on January 3rd. Two of the islanders reported a bird which, from their descriptions, was probably a Great Grey Shrike. On 19th I was lucky enough to see two magnificent ♂ Hen Harriers in the worst of the snow: they pursued Starlings without success, but presumably found an alternative food supply among the rabbits, many of which were weak from near-starvation. One of the harriers was seen heading south on 20th in the middle of our relief operations, during the excitement of the rather hazardous flitting of stores from the Fishery Cruiser, and the bustle of landing six tons of food on the pier.

Such have been the winter birds on Foula, and now there are signs of movement again. Glaucous Gulls have been seen frequently in the past week, with 8 in a party of 150 gulls on March 9th. All have been immature birds and they are presumably on their way north again. The Oyster-catchers and Lapwings are back, Shags are busy carrying nesting-material, Fulmars have selected their nesting-sites and are busy billing and cackling to each other on the cliffs, the hillsides and even on the chimney-pots. The Tysties are back in summer plumage, and the Blackbird's song echoes once more across the burn and the treeless valley. Three birds of special interest were "blue" Fulmars, one reported to me on March 8th, and two different individuals (one very dark, one speckled on the underside) observed on 20th.

91. The Measurements of the Blackbird.

ALEC BUTTERFIELD.

Since its inception in 1948 it has been part of the routine at the Fair Isle Bird Observatory to take measurements of each bird brought to the laboratory for examination and ringing. The methods used are substantially the same as those described in The Handbook of British Birds, vol. 1, pp. xxxiv-xxxv, except in the case of the wing-length, where a modification has been made. In order to obtain a figure which gives a truer comparison with Handbook measurements and those derived from museum material (in which a slight shrinkage takes place due to the drying of the skin) the minimum length of the undistorted wing lying in its natural curve is recorded. This is the measurement usually described as "chord of wing".

As the number of measurements for some of the commoner birds increased it became apparent that in nearly all cases the range or spread of the measurements recorded at Fair Isle was greater than the corresponding range given in The Handbook and similar works. The theory of sampling leads one to expect a larger range from a larger sample of the same material, - e.g. the expected range from a sample of 100 is about one-ninth larger than that from a sample of 50, and two-thirds larger than that from a sample of 10. It is quite obvious that very much larger samples are available from the several bird observatories than have been used in compiling the standard works of reference now in general use, and that in consequence the ranges quoted in these books are far too restricted. It may be noted that it is often difficult to be certain how many birds have been used in the samples measured for the purpose of compiling the reference works, even when some statement such as "12 measured" is appended to one or other of the characters given.

Summary of Measurements of the BLACKBIRD Turdus m.
merula made at the Fair Isle Bird Observatory from
1948-1953.

	<u>Adult ♂.</u>	<u>Imm. ♂.</u>	<u>Adult ♀.</u>	<u>Imm. ♀.</u>
<u>Wing:</u>				
Number	202	366	212	291
Maximum	141	136	136	136
Minimum	124	118	119	115
Mean	132.4	129.6	127.3	126.3
S.D.	3.11	2.98	3.12	3.22
<u>Tail:</u>				
Number	63	94	64	96
Maximum	120	118	117	114
Minimum	102	96	91	94
Mean	110.7	105.0	105.7	103.8
S.D.	4.34	4.38	4.93	4.60
<u>Bill:</u>				
Number	186	290	164	221
Maximum	27	29	28	28
Minimum	22	21	21	21
Mean	24.9	24.3	24.5	24.3
S.D.	1.25	1.43	1.19	1.16
<u>Tarsus:</u>				
Number	155	264	139	187
Maximum	40	39	39	39
Minimum	33	31	31	31
Mean	35.5	35.3	35.1	35.1
S.D.	1.47	1.68	1.47	1.50

All measurements in mm.

As a good example of what may be expected for birds in general, the Fair Isle Bird Observatory data on the Blackbird Turdus merula is summarised on p.296. Since the juvenile wing and tail feathers are not normally moulted until the birds are in their second year, all birds recorded as "juv.", "1st-winter" and "1st-summer" have been considered together as immature birds. Ringing recoveries show that these birds are migrants from Scandinavia and north-west Germany. As such, they belong to the nominate race Turdus m. merula Linnaeus (1758 - Sweden), from which race the birds breeding in the British Isles cannot be separated. The figures given may thus be taken as typical of the measurements of the British population.

As an example of the kind of confusion that can arise through attaching too much faith to The Handbook data, attention is drawn to L. Gurr's recent paper, "A study of the Blackbird Turdus merula in New Zealand" (Ibis 96: 225-260), in which he states that "New Zealand Blackbirds tend to be bigger than British." No definite claim is made, but this statement could imply that the Blackbird, introduced to the Antipodes little over a century ago, is already developing discernible "racial" characteristics. Gurr, however, has compared his adequate series of measurements with the totally inadequate series given in The Handbook, i.e. "♂♂ 117-134 mm. (12 measured), ♀♀ 118-128 mm." for the wing. Further, he has assumed that these data refer to our own breeding stock, but there is no guarantee that this is so, and in fact the only certainty is that the data derive from the nominate race: the authors do not claim that only British breeders were used, and it is likely that the sample includes passage-migrant or wintering birds from Scandinavia. Mr. Gurr, therefore, has failed to demonstrate that New Zealand birds are bigger than British, and his figures, - "♂♂ 117-144 mm., ♀♀ 104-133 mm." (op. cit. p. 227), - for a substantial series are very close to those found for Fair Isle birds of the typical race.

92. Migrants at Monkshouse, Northumberland.

E.A.R. ENNION.

The period August 19th-26th was one of the most interesting experienced here, numbers of passerines and waders being brought in by strong to gale force winds, backing from SE. to north, with heavy rain.

WADERS. Ruffs came in on 19th and there was an influx on 21st, with Wood Sandpipers and a Temminck's Stint, - a rare bird for Northumberland, which we got in a net, and compared with a Little Stint, on 24th. More Wood and Curlew Sandpipers were about on 23rd and a further influx took place on 26th-27th.

WARBLERS, including Willow, a Wood, Whitethroat, Lesser Whitethroat and Garden, were common on the Inner Farnes on August 21st-22nd, and Garden Warblers and Pied Flycatchers were much in evidence on the mainland. Redstarts were moving on 24th. There was a further influx of Pied Flycatchers, both Whitethroats, Willow Warblers, Chiffchaffs, Goldcrests, Whinchats and Wheatears on 7th September.

LONG-EARED OWL and **GREEN WOODPECKER** were seen flying in from the sea at 0630 hours on August 26th.

BARRED WARBLER. One was caught on August 23rd and another was seen two miles south of the Observatory from 27th-29th. A third was on the Inner Farnes on 7th.

WRYNECK. One on August 22nd on Inner Farnes remained until 27th: a bird was found dead on the Farnes on 26th. One was seen at Bamburgh on 27th and another at Monkshouse was trapped on September 7th.

RED-BACKED SHRIKE. A juv. was on the Inner Farnes on August 21st-22nd and one was trapped at Monkshouse. There was one on the Farnes on 27th and another two miles south of the Observatory: this was trapped on 28th and was later recovered in Sicily (see p. 260).

GREAT GREY SHRIKE. Single birds were seen on October 10th and 15th.

GREAT SKUA. Nine were flying high in a flock to the south on October 14th.

93. The Speed of Migration - A Speculation.

H.G. BROWNLOW.

The term "speed of migration" in this paper means not the actual air-speed achieved over a short distance, such as can be measured by speedometer in miles per hour, but the average speed over long distances and periods on migration, measured in miles per day, or even per week. The speculation is that there is a basic tendency for bird-migration to be a slow-starting but accelerating process, with probably a corresponding deceleration at the close of the journey.

Actual speeds of migration cannot be measured till a chain of trapping stations exists between breeding and winter quarters, and until the actual course of thousands of birds has been plotted. Pending such an Utopian state of affairs, any consideration of this subject is bound to be speculative. Circumstantial evidence in its favour rests on two bases, behaviouristic considerations and my observations on the character of migration at home and abroad.

It is envisaged that this tendency is the normal pattern provided the weather and other environmental conditions are optimum. That is to say, if birds were always lucky enough to migrate in fine, calm weather over ground suitable for resting and feeding, they would build up to a maximum rate of progress in the middle section of their journey. For convenience, I call this their "peak" speed. But since few birds are fortunate enough to enjoy optimum conditions throughout their journey, "peak" speed may be affected by secondary factors of weather and (or) topography. Thus bad weather may reduce the peak speed or halt migration temporarily, whilst drift across seas or deserts where the bird cannot rest or feed may greatly increase the normal "peak" performance.

Very few types of animal behaviour begin with an

instantaneous rise to full intensity and end with an equally sudden fall to zero, like switching on and off an electric light. Most begin with appetitive behaviour and gradually build up to consummatory acts of full intensity (Tinbergen 1951, p.141). The motivation that causes migratory behaviour is beyond the scope of this paper; it is surveyed in Hinde (1951), and its strength is evident from the known facts of migration. Simple consummatory acts seem to satisfy the animal that performs them, bringing about a drop in motivation (Tinbergen, p. 104). A flight during most of the daylight hours for day-migrants or of darkness for night-migrants may well be such an act in the early stages when migratory motivation is at a low ebb, and the birds may spend the rest of the 24 hours in resting and feeding. Later, halts may become more sporadic and the duration of the flights intensified. If, then, the migratory motivation rises gradually to a maximum, and later falls steeply, the flights necessary to satisfy the bird will increase in duration and frequency, and finally decline towards the end of the journey.

This speculation was suggested by observation of the character of spring and autumn migration of northern European birds in the Canal Zone of Egypt in 1949. In that year the weather was equable and probably exerted very little effect on the speed of migration. When the rushes of northern species appeared in spring, birds were usually present in large numbers for two or three days. Retrapping of ringed birds proved that many stayed in the garden for such periods, whilst some remained for varying periods of up to 30 days (Browlow 1952). The autumn rushes, however, passed through in an hour or two. The leisurely character of the spring migration and the hurried nature of autumn passage in Egypt are the reverse of those of the corresponding seasons in this country: but whereas Great Britain can be considered as near the beginning of the autumn and near the end of the spring journeys, Egypt is approximately in the opposite situation.

(concluded on p. 303)

94. Bird Migration at Blaavandshuk in
Denmark, September 1954.

DAVID JENKINS.

A temporary bird observatory was established at Blaavandshuk, West Jutland, in September 1954. This is the most westerly point of Denmark, where the coast makes a right-angled bend from N.NE to E.SE. just to the north of Esbjerg. The observatory was manned by six Englishmen and three Danes, at least five of whom were always present. The primary object of the expedition was to study passerine migration, and to attempt to correlate observations with those from Lista (south Norway), Falsterbø (SW. Sweden), and possibly elsewhere as well. A general account of the work has been prepared for publication in Denmark (Dansk Orn. Foren. Tidss., August 1955), and it is hoped that a more detailed study of the correlations will appear in a British journal.

The weather of September 1954 was characterised by a succession of depressions passing eastwards across the Atlantic and striking the west European seaboard. On the Danish coast the effect of this was a series of westerly gales separated from each other by two or at most three relatively fine and calm days. It was thus an ideal month to study the effect of wind and absence of wind on migrant birds. From September 8th to 17th any wind stronger than force 3 brought diurnal migration to a standstill. On September 18th wind strength fell rapidly during the morning from force 8 to 6, and a strong migration of Chaffinches and less pronounced passage of Meadow Pipits followed immediately. The next day, 19th, was almost calm and an immense movement occurred, over 18,000 birds being counted in two hours. Then came two days with the wind between forces 4 and 6, and no migration; then a drop to force 2, and nearly 1,000 birds were counted. On 23rd, despite a force 5 wind, over 2,000 birds passed in a two-hour watch, but the next two days with winds continuing at this strength produced negligible migration.

A drop to force 4 on 26th brought 700 birds in 2 hours, but a rise to force 6 on 27th stopped migration again. Then on the next two days, with winds at force 3, some 10,000 birds were counted in 2 hours each morning. On 30th an increase to force 7 again brought passage to a standstill, but a reduction to force 5 on October 1st produced a small passage of 1,000 birds. With the final day of the expedition, October 2nd, came a lull to force 1 and with it a vast migration when nearly 20,000 birds were counted in 2 hours.

It would appear that big migratory movements were associated only with almost calm conditions, but that a drop in wind-strength stimulated birds to migrate on days when they would otherwise have been grounded. The chief species involved were, in order of numerical strength, Meadow Pipits, Chaffinches, Bramblings and Linnets.

Comparison of records of diurnal migration between Blaavandshuk, Lista and Falsterbø suggest that the West Jutland birds came from south Norway. Here a definite correlation can be established, while there is no striking similarity (except insofar as migration at both places was associated with lack of wind) between Blaavandshuk and Falsterbø.

Night-migrants were counted daily in a circumscribed area at Blaavandshuk. There were peaks of passage on September 6th and subsequent days, 18th, 22nd, 28th-29th and October 2nd, a similar pattern to the diurnal movements. The origin of the night-migrants was probably more heterogeneous, however. The early peak was probably associated with a trans-Baltic drift on September 5th, followed by re-directed southward movement, whereas the later movements appear to have crossed from Norway in cyclonic conditions on westerly winds. Nevertheless, some correlation may be made with arrivals at Fair Isle, - particularly the capture at Fair Isle and Blaavandshuk on September 21st-22nd of Siberian Lesser Whitethroats *Sylvia curruca blythi* (pp. 195, 219).

The migration of sea-birds was spectacular, especially the movement of hundreds of divers, gulls and terns of several species, of scores of waders flying past every day and of smaller numbers of birds of other groups such as ducks, geese and skuas. Many birds rare in Britain were seen by all the observers.

But this is not the place to publish a list of the rarities, tempting though it is to compare Blaavandshuk with Fair Isle as a tally-hunter's dream world! Suffice it to say that all the bird-watchers who went to West Jutland had a most enjoyable and profitable holiday, and we trust that there will again be volunteers to man this station in other - and perhaps finer - autumn seasons.

(concluded from p. 300).

For Swallows Hirundo rustica Egypt is at about the middle third of their journey. In spring thousands of Swallows may be seen steadily beating their way up the Sweet-Water Canal, and only occasionally were they seen flying around and feeding in the evening. They were in all probability at or near their "peak" migration-speed. The passage of Northern Chiffchaffs Phylloscopus collybita down the west coast of Britain in autumn 1951, covering 700 miles in four days (Williamson 1954), is perhaps a case of peak speed under congenial conditions for a bird of passage that had already travelled a considerable distance on its autumn journey.

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95. Notes on Shetland Breeding Birds in 1954.

L.S.V. VENABLES.

REED BUNTING Emberiza schoeniclus. There was a successful 1st-brood nest in the loch-side marshy bay just opposite the Spiggie croft, where a pair nested in 1953.

SHOVELER Spatula clypeata. A successful 1st-brood nest at Hillwell, the young (a week or so old) being seen on June 14th. Following the successful 2nd attempt in 1953 Shovelers wintered on Spiggie Loch for the first time.

SWALLOW Hirundo rustica. A store-shed at East Isle, Out Skerries, had 3 nests with eggs in 1952. A few Swallows returned in 1953, but the shed then held pier-building materials and the door was kept closed. The birds hung around for a time, then left. No news in 1954, but I have heard of single nests in Tingwall valley and at Culsetter, Loch Spiggie (see p. 178).

CORNCRAKE Crex crex. Back to "common" again in Dunrossness in 1954 following low numbers in 1953. (It was absent from Fair Isle as a breeder for the first time since 1948. - Ed.).

REDWING Turdus musicus. A bird was seen again at Baltasound, Unst, following the successful rearing of a 2nd brood in 1953 (Scot. Nat. 66: no.1), but no proof has been received that nesting occurred in 1954.

ROOK and JACKDAW Corvus frugilegus and monedula. The Kergord rookery (see Brit. Birds, 46: 265) appears to be flourishing. Jack Peterson reports a mixed flock of 60 birds flying in this area, plus an additional 16 Rooks in a field, on January 30th 1955.

96. Autumn Migration of Waders at Fair Isle
in 1954.

KENNETH WILLIAMSON.

In the last Bulletin, pp. 255-258 and 264-268, an account of the autumn migration at Fair Isle in 1954 was continued with notes on the waterfowl and birds of prey. The analysis is concluded in this issue with observations on the movements of waders, gulls, etc.

WATER RAIL Rallus aquaticus. Very scarce. It was first seen on September 23rd, and one (perhaps the same) present between September 27th and October 1st was caught on 29th. The only others seen were birds captured on October 24th and 28th, and all had the distinctly olive-brown mantle plumage of Continental birds.

MOORHEN Gallinula chloropus. A young bird was present (and was caught) during the period Sept. 23rd to October 14th, and an adult was seen on 24th.

LAPWING Vanellus vanellus. A party of 15 on July 11th may represent post-breeding dispersal from Orkney or Shetland: our own breeding-pair and 3 young disappeared about this time. There were 5 on August 3rd, probably from Shetland, and a few at the end of the month increasing to a dozen on 31st, again with a calm, clear day in Shetland. Occasional small parties were seen in September, but towards the close of the month the figure rose from a dozen on 28th to 40 next day, under similar conditions to the earlier movements. Small parties were seen on most days to mid-October, there being 11 on 15th in col weather and 10 on 23rd with calm, clear weather to the north.

RINGED PLOVER Charadrius hiaticula. Passage was probably taking place on August 16th (anticyclonic weather), 21st (col between highs over western Norway and the Western Approaches), 26th-27th (with the wind cyclonic and southerly), September 4th-5th (a low in Forties, suggesting cyclonic arrival from west Norway), 13th-14th (NW. weather), 23rd (col between Iceland and Shetland) and October 1st (col, calm and clear in Faeroe and Shetland). Only very small numbers were concerned. Four taken with a torch and net on North Haven shore between August 23rd-26th were much lighter, and had shorter wings, than a bird ringed on Buness as a nestling and recaptured on the shore on August 22nd. These small birds seem likely to be referable to the northern race Ch. h. tundrae.

RINGED PLOVERS

<u>Date.</u>	<u>Age.</u>	<u>Wing.</u>	<u>Bill.</u>	<u>Tarsus.</u>	<u>Tail.</u>	<u>Weight.</u>
Aug. 22nd	Juv.	135	15 $\frac{1}{2}$	25	63	63.02
" 23rd	"	128	15	25	59	48.64
" 24th	"	126	14	26	59	46.20
" 25th	"	126	14	25	61	41.85
" 26th	"	125	13	24 $\frac{1}{2}$	61	47.09
" 29th	"	135	13 $\frac{1}{2}$	29	64	54.55

GOLDEN PLOVER Charadrius apricaria. The first party, 5 in number, came apparently with the NW. air-stream of a falling low in Forties. There were no more till mid-August, when 2 or 3 were seen on 19th-20th, a time of calm, clear anticyclonic weather in Faeroe and Iceland. An influx of 7 on 30th (apparently cyclonic from Iceland round a low centred on Faeroe) was followed by a big flock of 37 on September 4th. This may have come from Faeroe in calm and clear weather which was succeeded by light NW. wind, but could equally well have reached us from western Norway round the northern side of a small low moving from Fair Isle into Forties. Four birds arrived on September 15th, when a complex low lay between Scotland and east Iceland, and 14 came

next day with improving conditions to the north-west - in southern Iceland especially - and a northerly breeze backing to west round a low pressure centre approaching Shetland. This movement peaked with a score of birds on 17th. There were 4 from 23rd-26th with col weather in the north-west at the beginning of the period, and these were followed by 13 on 27th and 17 on 29th with NW. wind. A score on October 2nd seem more likely to have been drift-migrants from the Skagerrak ahead of an occlusion moving on a NW.-SE. front across the North Sea, and 23 on 4th may well have had a similar origin.

TURNSTONE Arenaria interpres. Eight were seen on July 18th and 6 on 28th increased to 40 next day: in both cases cyclonic NE. winds in Forties suggest drift off the Norwegian coast. There were 20 on August 2nd with SE. winds in the North Sea, 10 on 5th (possibly onward passage in col weather), and on 13th two young birds were trapped in the "Yeoman Net" on the South Haven tide-line:

<u>Date.</u>	<u>Age.</u>	<u>Wing.</u>	<u>Bill.</u>	<u>Tarsus.</u>	<u>Tail.</u>	<u>Weight.</u>
August 13th	Juv.	153	20 $\frac{1}{2}$	26	62	77.13
"	"	147	22	25 $\frac{1}{2}$	62	80.50

Turnstones were then infrequent until the end of the month, when 3 on 27th were followed by a dozen on 28th and 20 on 30th: at this period there was a westerly airstream at Fair Isle on the south side of a low to east of Iceland. After one only on September 5th, a time of calm, clear anticyclonic weather, a total of 33 was counted after an overnight change to SE. wind between the Skagerrak and Fair Isle. One only on 9th (calm again in Shetland) was followed by 10 next day, with a cyclonic easterly airstream between west Norway and Shetland: these, however, could conceivably have been moving south from Faeroe, where fine clear weather prevailed. A dozen on 15th increased to 35 next day, again with calm weather in Faeroe but also the chance of cyclonic migration from south Greenland or Iceland.

Following two on 23rd there were 60 on 24th after col weather to the north-west; there were fewer on 25th-26th and again 60 on 27th, the weather again suggesting a cyclonic approach from Iceland.

SNIPE. Capella gallinago. September 18th, 23rd and 27th were days of increase, with 20 noted on the last date; weather conditions at these times indicate movement from the north-west (see TURNSTONE). A big influx of over 50 on October 2nd, on the other hand, would appear to have been due to a drift from the Continent on SE. winds. A small number on October 14th seem likely to have come from the north-west.

JACK SNIPE. Lymnocyptes minimus. First noted on September 26th. Two were seen on October 2nd and 6 on 4th after nights of SE. winds.

WOODCOCK. Scolopax rusticola. There was one on October 3rd, 2 on 16th, and several on 18th with over 50 next day, all after periods of SE. wind in the North Sea. Subsequently a few dozen appeared with the main Turdus movements, but there were no big numbers this year largely due to the failure of SE. winds to materialise towards the end of the month.

CURLEW. Numenius arquata. Passage - 30 birds - was first noted on July 11th with SE. wind, and was resumed when an Azorean high reached northern Britain on 19th. There was little further movement until the beginning of August, when 7th and 8th were good days with 20 each during easterly weather in Forties. Some passage continued till 12th and there was a resumption on 15th with 10 recorded in anticyclonic weather, and again on 18th and 20th-21st under similar conditions. Slight movement on August 23rd culminated in a big day (with 25 recorded) on 24th, with a NE. airstream from west Norway between the ridge of a polar high and a depression active in the southern North Sea. Apart

from 16 on September 3rd with a high in Forties there were a few almost every day in that month and in early October, Curlews being occasional afterwards.

WHIMBREL. Numenius phaeopus. Singly on July 7th and 9th, 2 on 12th and 2 on 18th, all with light west or NW. winds. Three on 27th seem likely to have made a cyclonic approach from the Skagerrak or SW. Norway ahead of an occluded front. There was one with Curlew passage on August 7th, 3 on 10th under conditions suggesting a cyclonic passage from southern Norway, and afterwards occasional birds till September 3rd. The last was recorded on September 10th-11th.

GREEN SANDPIPER. Tringa ochropus. Passage began with 4 on July 27th with SE. wind between the Skagerrak and Fair Isle ahead of the occluded front of a low with its centre over northern Scotland. There were single birds almost daily to August 27th, with 3 on 10th after E.S.E. winds in Dogger and Forties on the northern side of a low with centres over the Hebrides and West Frisian Islands. Two birds were trapped:

<u>Date.</u>	<u>Age.</u>	<u>Wing.</u>	<u>Bill.</u>	<u>Tarsus.</u>	<u>Tail.</u>	<u>Weight.</u>
July 31st	Juv.	144	34	34	61	65.99
Aug. 11th	"	137	30	31	63	50.40

WOOD SANDPIPER. Tringa glareola. One, Aug. 10th.

COMMON SANDPIPER. Tringa hypoleucos. Singly on July 12th, August 7th-8th, 12th, 20th, 25th-27th and September 4th.

REDSHANK. Tringa totanus. A score on July 12th may have come from western Norway in a NE. airstream in Forties, but 30 on 25th seem more likely to have come round a depression situated east of Iceland. 15 or so were present until the beginning of August, and 20 on 1st were followed by 40 over the next three days, the number then declining. Although on 31st weather

conditions favoured either immigration from Iceland or onward passage from Faerøe, there was a change to SE. winds in the North Sea on 2nd and 3rd. We counted 30 on 9th and further increments were noted on 14th and 21st, the last being succeeded by about 80 on 22nd with east wind in the Skagerrak and across the North Sea. Numbers again rose to the 50 mark on 26th and 75 on 28th the last with westerly weather at Fair Isle: after this there was a falling-off until the next increase, to 80, on September 3rd, with the possibility of cyclonic immigration from Iceland round a low pressure centre to east of that country. Only half-a-dozen remained on 8th but over 20 were present next day after SE. weather in the North Sea. Following a similar decline 30 appeared on 15th in cyclonic weather suggesting Icelandic origin. Increases followed on 19th-20th and 23rd-24th with calm or light air in Faerøe and Shetland, in the first case at the centre of a low and the second in col conditions which extended north-west to Iceland. Further arrivals coincided with a Continental drift on October 2nd and there were still over 60 on the island on 4th-5th. Two caught in the "Eunson Trap" (a giant "Potter" set on the South Haven wrack) were Tringa to. totanus on wing-length and data of 3 T.t. robusta captured in 1953 are shown for comparison:

REDSHANKS

	<u>Date.</u>	<u>Age.</u>	<u>Wing.</u>	<u>Bill.</u>	<u>Tarsus.</u>	<u>Tail.</u>	<u>Weight.</u>
1954	28.vii	Juv.	155	45	47	68	119.68 gm.
	1.viii	"	154	42	45	65	133.79
1953	5.viii	Ad.	173	42	50	70	130.00
	5. ix	?	167	46	50	68	128.00
	16. ix	?	163	43	47	67	148.00

SPOTTED REDSHANK Tringa erythropus. There was one with a Continental influx on October 4th, in company with Common Redshanks for much of the afternoon, on the grassland or the wrack of the South Harbour. The call was heard often. This is a rare species at Fair Isle, last recorded in October 1949.

GREENSHANK Tringa nebularia. The first were 3 on July 27th (for weather, see GREEN SANDPIPER) and a bird, or probably 2 on some days, was present from August 3rd-7th, 10th and 12th-15th.

KNOT Calidris canutus. Singly, or a few irregularly during August and September. First seen July 26th, and the biggest number was 4 on 29th.

DUNLIN Calidris alpina. Singly, or a few, from July 23rd to September 4th, with 6 on August 26th and 10 on 31st, the last with calm clear weather in Faerøe and Shetland. In early September they were more numerous, with 8 on 5th-6th and a gradual increase to 20 on 9th-10th, the first lot with SE. weather in the northern North Sea and the second lot with good re-determined passage conditions in Shetland and Faerøe. There was a decline to mid-month and then no more until 2 appeared on 23rd and 4 on 25th, and later 4 on October 4th. One caught on September 1st was C. a. schinzii.

SANDERLING Crocethia alba. First on July 20th and half-a-dozen or so on most days from 24th to 29th. There was practically no movement in August until 20th after which we had 2 each day to the end of the month. There was new movement from September 1st (6) to 7th, a few between 10th-16th (4 on 12th) and 2 from 20th-22nd.

RUFF Philomachus pugnax. The first were 2 on July 29th with other waders, a big depression in Forties suggesting an origin on the west or north-west coast of Norway. In August there were single birds on 4th and 7th, 5 on 10th, 2 on 12th and 25th, and 3 on 30th. In September we had 3 on 10th and one on 13th.

LESSER BLACKBACK Larus fuscus. A score or so, July 26th, and 30 on August 15th, when the ridge of an Azores high reached north-eastwards to the Faeroes, were certainly on passage.

97. Some Birds in the North Atlantic.

AGNES W. THOM.

A voyage from the Clyde to Montreal was made in S.S. LISMORIA (8,000 tons approx.) between May 27th and June 4th 1954. An account of the sea-birds observed will appear in a future number of British Birds.

Two land-birds came aboard the ship during the voyage. The first was a Swallow Hirundo rustica which alighted after circling the ship several times at 1800 hours on May 28th. It seemed very tired, the plumage was much ruffled, and while I was watching it at close range it gaped several times. It was still on board at 2000 hours. Our position was about Long. 15 W., some 300 miles due west of the north-west coast of Ireland. At 1000 hours on June 2nd a small passerine which was undoubtedly one of the New World "sparrows" was seen on board. It was of a brownish colour, with streaked head and back, some spotting on the throat and the breast buffish, orange or reddish legs, and a yellowish stripe above the eye. We were not far to south-west of Cape Race, Newfoundland.

Little of importance was seen on the return trip in August. A large bird with long, dark wings, white head with a distinct dark collar round the back and sides of the neck, was seen at a short distance from the ship at 1410 hours August 9th. It was certainly neither big gull nor immature Gannet, and was probably an immature albatross Diomedea sp. Our noon position on this day was 50 43 N. 58 01 W. Next day, at 1430 hours, four Long-tailed Skuas Stercorarius longicaudus were seen flying south, and later in the morning they were followed by parties of five, three and a single bird going in the same direction. Noon position was 53 06 N. 53 20 W.

98. Research on Flat-Flies at Fair Isle in 1954.

GORDON B. CORBET.

During July and August of 1954 a detailed study, including a large-scale marking experiment, was again carried out on the parasitic bird-flies Ornithomyia fringillina Curtis. The study made in 1953 and briefly reported in Bulletin no.12, para 156, gave very limited results, but at the same time the experience gained was invaluable in planning the 1954 experiment. The much improved delousing apparatus (see Williamson 1954) also proved of great value. The results are not yet fully analysed and will be published in detail elsewhere, but I shall give here some of the more important ones.

Quite apart from information gained by marking, much can be learned from the actual infestation statistics combined with the detailed examination of every fly collected. The flat-flies were examined in an anaesthetised state soon after collection and the following details noted: sex, relative size of abdomen, number of mites or feather-lice (Mallophaga) attached, damage to wings and legs, and any other abnormality of colour or structure observed. They were then marked with an individual combination of 3 spots of cellulose paint on thorax and legs before being released in the plumage of the next bird to be trapped.

During the two months 582 marked flies were set free on birds, one to a bird, and of these 92 or 15.5% were recovered, 69 on the same individual and the other 23 on different birds, both of the same and different species. In addition, 63 flies were released without a host in the vicinity of the Observatory, and 8 of these were later recovered on birds. In 1953 three such recoveries were obtained, all from the same species (Wheatear Oenanthe oenanthe) as their original host, suggesting some degree of host selection by the fly.

However, the eight recoveries of last year show absolutely no tendency for the flies to return to their original host-species. Similarly, of flies released on birds and recovered on different individuals, the great majority were recovered on the species on which they had been released, irrespective of their original host-species. For example, of 13 flies released on Rock Pipits Anthus spinoletta petrosus and recovered on different birds, 11 were on other Rock Pipits and the other two on Wheatears.

This crossing over of flies probably takes place when birds of a species are roosting together or feeding in close proximity. In one case two flies put at different times on to a colour-ringed adult Rock Pipit which was seen to be feeding fledglings on the shore were both recovered from one of the fledglings.

Seasonal Changes in Infestation

For the purpose of analysing the infestation statistics the season was divided into 5- and 10-day periods, and for each period for each host figures were worked out for the percentage of birds infested, the number of flies per bird examined, percentage of ♂♂ flies, etc. As an example, the graph for the average number of flies per Rock Pipit is given on p. 317.

The corresponding graphs for Meadow Pipit Anthus pratensis and Starling Sturnus vulgaris show similar double peaks, while that for Wheatear has but a single peak. This is clearly related to the fact that all but the Wheatear are to some extent double-brooded, but the precise nature of the relation is not so clear. The ♀ flies lay at intervals of about 5 days full-formed larvae which pupate immediately and fall to the ground. These puparia, whether early or late in the season, have never been known to produce adults until the following season. Therefore, the second peak in the graphs cannot be explained by a second generation of flies. There are

two possible explanations as to how the second-brood young become infested: the period of emergence of flies from the puparia may be prolonged, or the flies which happen to find an adult bird may transfer themselves to the nestlings during feeding or brooding. From the little that is known about the dates of emergence, the first of these suggestions appear unlikely. Unfortunately our information on the comparative degree of infestation of adults and nestlings is very scanty, but it does appear that adults are less heavily infested than juveniles.

The only enemy of the flies appears to be the bird itself. The percentage of flies with torn wings or damaged legs increased from 2% at the beginning of July to 40% at the beginning of August. These are presumably the "ones that got away", whilst the general fall in the graph represents the gradual killing-off of the flies by their hosts.

Host preference

The degree of infestation on the five species observed is shown below as the number of flies per bird examined (juveniles only):

Species.	No. of birds.	Flies per bird examined	
		(Fair Isle)	(Skokholm)
Starling <u>Sturmus vulgaris</u>	116	1.41	None present
Wheatear <u>Oenanthe oenanthe</u>	200	1.16	0.80
Rock Pipit <u>Arthus spinoletta</u>	212	0.98	0.56
Meadow Pipit <u>Arthus pratensis</u>	113	0.56	0.50
Twite <u>Card. flavirostris</u>	46	0.41	None present.

It will be seen that there is a considerable range and also that Wheatear, Rock Pipit and Meadow Pipit have the same order as in the Skokholm table (see para. 99). The explanation probably lies in the nesting-habits, the nestlings of the hole-nesting species, the Starling and Wheatear, suffering added infestation from puparia laid in the nests during the previous summer.

Breeding

The average percentage of ♂♂ was 40.5% and this only began to drop during the latter half of August. That ♀♀ can produce many puparia in the absence of a ♂ is suggested by the case of a ♀ which was recovered in the process of laying a puparium on October 6th after 42 days on the same Rock Pipit, presumably alone. There are many similar cases involving shorter periods. It is difficult to assess the actual rate of producing puparia but some idea of the potential rate can be obtained from the case of a ♀ fly which produced two fully-formed puparia at an interval of 4 days 4 hours, 30 hours of which time was spent away from a bird. At present I am making an anatomical study of the reproductive system, and may be able to correlate the results with those obtained from the marking data.

Conclusions

Putting all the pieces of information together, the typical life-cycle of the fly appears to be somewhat as follows. During June the adults emerge from the puparia and attach themselves to the first bird they come across. If this is a juvenile, the flies will tend to remain on this one bird throughout their lives, those which survive the preening activities of their host living until September or even October.

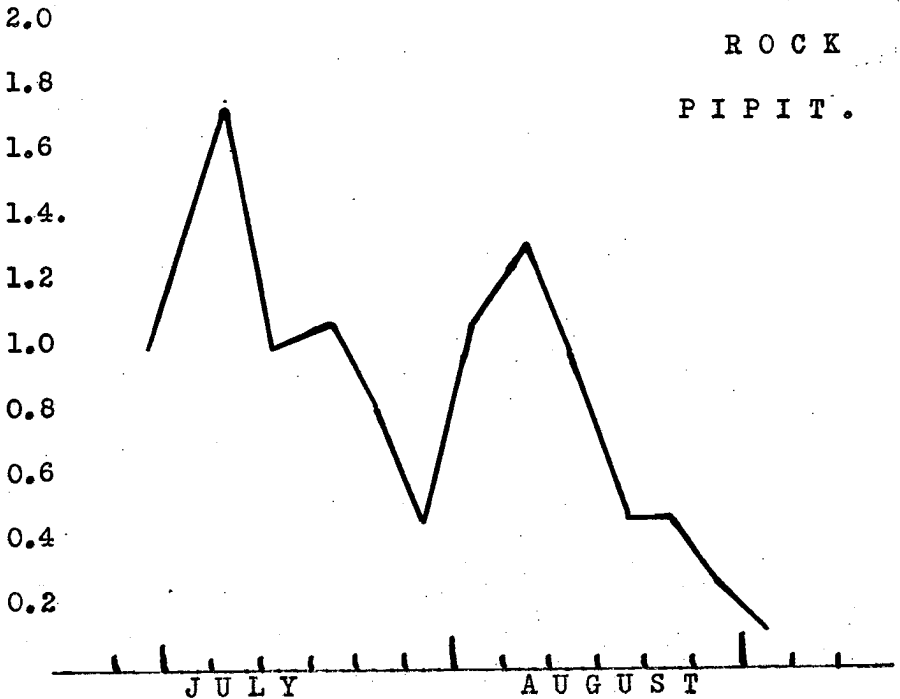
Those flies finding themselves on adults will often be transported to the nest where they will eventually transfer to the nestlings. The ♀♀ produce their puparia at intervals of four or five days throughout

their lives and these are mostly scattered at random on the ground, although a certain proportion will be dropped in the nest. There are very few flies left by October and probably none over-winter as adults. No flies are found on the early spring migrants, nor on the residents until the first of the over-wintering puparia hatch at the beginning of June.

Reference.

WILLIAMSON, K. (1954). The Fair Isle Apparatus for collecting bird ecto-parasites. Brit. Bds. 47: 234-235, plate 44.

Number of flies
per bird examined.



99. Flat-Fly Infestation in the Pipits and
Wheatears of Skokholm in 1954.

GEOFFREY STANSFIELD.

The figures given in this paper are derived from the examination of young pipits and Wheatears in the "Fair Isle Apparatus" which was used during the 1954 season at Skokholm Bird Observatory, off the coast of Pembrokeshire. The period of the study was from the date when the first juvenile appeared - a Wheatear on June 11th - to September 30th, when a succession of 30 examined birds produced no flies. In taking the observations to this late date some migrant birds will have been included, but their numbers are not large enough to be significant.

All the flies taken were Ornithomyia fringillina, the same species which infests these birds at Fair Isle. On October 15th, however, a retrapped Rock Pipit gave a specimen of O. avicularia, although it had had no flies when ringed seven weeks earlier. On October 25th and 30th two further specimens of O. fringillina were taken from Rock Pipits.

The number of individual birds examined is less than the Fair Isle total, being limited by the smaller size of the breeding population at Skokholm.

Specific Investigation

Table 1 shows the number of birds examined, the number infested with flat-flies, and the total number of flies collected. The second set of figures under each species gives the details of birds once deloused and re-examined later.

From the table it is evident that there is no important difference in infestation between the three host-species, and that birds once deloused do not acquire new flies as easily.

Table 1.

Species.	Number examined.	Number infested.	Total flies.
Wheatear			
<u>Oenanthe oenanthe</u>	76	31	61
Retraps	38	10	14
Rock Pipit			
<u>Anthus spinoletta</u>	87	27	49
Retraps	40	6	6
Meadow Pipit			
<u>Anthus pratensis</u>	62	21	31
Retraps	14	3	7

Degree of Infestation

Table 2 separates the birds having the same number of flies. It is interesting to note that the degree of infestation is lower than that shown by the 1951 figure for Fair Isle.

Table 2.

Species.	<u>Number of Flies.</u>				
	0	1	2	3	4
Wheatear	45	12	10	7	2
Retraps	27	8	3	-	-
Rock Pipit	60	15	5	5	2
Retraps	35	5	-	-	-
Meadow Pipit	41	15	3	1	2
Retraps	1	1	1	-	1

Variation of Infestation with Time

No one species provides sufficient examinations to give an individual statistical treatment, but a combination of the three species into one table (Table 3) gives some indication of the decline in infestation. Observations are divided into eight fortnightly periods, as shorter periods are not statistically satisfactory.

Table 3.

<u>Period:</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
Percentage infestation:	61.5	57.4	57.7	36.3	28.1	25.0	25.0	-

Percentage infestation never rose above 61.5%, - much lower than at Fair Isle, and the peak period occurred in the middle of June. However, peak periods at both Fair Isle and Skokholm occur when the juvenile birds first appear, there being a time lag of two to three weeks due to the later breeding season at Fair Isle (first juvenile Wheatear trapped on June 24th in 1954).

Phoresy occurred in 63 of the 257 flies taken and examined, both eggs and mites being found at the base of the wings in the majority of cases.

100. Flat-Flies collected at Monkshouse Bird
Observatory, Northumberland.

E.A.R. ENNION.

The first flies taken were from Meadow Pipits on July 5th and 7th. Out of 83 Meadow Pipits examined, 12 were found to have flies, 7 in July, 3 in August and 2 in September. Four examined in October gave a nil return.

Two out of 8 Rock Pipits in July had flies, but 2 in each of August and September were without. Only one of 17 Pied Wagtails was infested, producing 3 flies on August 9th; and only one out of 10 Wheatears searched produced a fly, on August 3rd.

The specimens collected have been forwarded to Mr. G.B. Thompson for identification.

101. Records of Flat-Flies from Migrants at
Fair Isle in 1954.

GORDON B. CORBET.

As usual, Ornithomyia flat-flies were completely absent from the main body of spring migrants, although fleas were common (see pp. 234-236), and they were very rare on the autumn migrants. The following records refer mostly to early autumn migrants. Owing to some trouble with the delouse a complete coverage of the late autumn period was not possible.

The records from GREEN SANDPIPER, WHITE WAGTAIL, and YELLOW-HEADED WAGTAIL appear to be new host-records for Ornithomyia fringillina Curtis, according to the list given by Thompson (1954).

MERLIN Falco columbarius. All autumn Merlins examined were infested. An exceptionally early Iceland ♀ Falco c. subaesalon on July 29th had 9 O. fringillina 4 ♂♂ and 5 ♀♀. Another subaesalon on August 16th had ♂ O. avicularia (Linnaeus) and 4 ♀♀ O. fringillina. After this, nine birds trapped and examined carried fringillina ♀♀ only, 22 in all, 4 being the maximum on one bird.

GREEN SANDPIPER Tringa ochropus. Juvenile on August 11th, one ♀ O. fringillina.

CUCKOO Cuculus canorus. 1st-summer ♂ on July 9th, 3 ♂ and 3 ♀ O. fringillina. Juvenile on August 8th, one ♂ and one ♀ O. avicularia.

ICELAND REDWING Turdus musicus coburni. A 1st-winter bird on August 26th had a puparium of fringillina in its plumage, but the bird was not examined for flies.

GARDEN WARBLER Sylvia borin. A late spring bird on June 19th had one fly which escaped during handling: the bird was not examined by chloroform vapour.

WHITE WAGTAIL Motacilla a. alba. A juvenile on August 23rd had one ♀ O. fringillina.

YELLOW-HEADED WAGTAIL Motacilla citreola. 1st-winter birds examined on September 20th and October 1st each had one ♀ O. fringillina.

Many of these flies may have been acquired by the birds after their arrival on the island. This is certainly the case with one Merlin which produced one of my marked flies which had been put on one of the small resident passerines two weeks before. The Merlins very likely acquire their large numbers of flies from the small birds they take as prey. Ornithomyia avicularia does not occur in Iceland nor (as a resident species) in Shetland, but it is found on the Continent as far north as southern Sweden (Thompson 1954), and so the Iceland Merlin with O. avicularia probably obtained it from a Continental immigrant it had killed.

I should point out that even in August, when O. fringillina is quite plentiful on the local birds, flies are almost totally absent from the migrant passerines. For example, 36 warblers (probably all birds of the year) were examined during August without producing a single fly.

Reference

THOMPSON, G.B. (1954). Contributions towards a study of the ectoparasites of British birds and mammals (2). Annals Mag. Nat. Hist., 12: 17-39.

oOo

James Wilson reports that on December 3rd he saw a Bittern Botaurus stellaris at the Burn of Wirvie, the bird "freezing" in characteristic Bittern posture despite the absence of any cover. A Little Gull Larus minutus was at the North Haven on the same day. The Bittern is the second and the Little Gull the fourth record for the island.

102. Records of Bird-Fleas at Fair Isle in
Summer and Autumn 1954.

KENNETH WILLIAMSON.

The last report on bird-fleas was published on pp. 234-236 and dealt with infestation among spring migrants. Examination for fleas was continued throughout the summer and early autumn, but was sporadic from mid-September.

During this period three species new to the island were taken, though only one is a bird-flea, Ceratophyllus vagabunda Bokeman from a juvenile Turnstone, netted on the shore on August 13th. The others are mammalian fleas, a single Typhloceras poppei Wagner from a Fair Isle Field Mouse (Apodemus sylvaticus fridariensis), and a Human Flea Pulex irritans Linnaeus whose origin (and perhaps it is as well) remains shrouded in mystery.

A Berlese Funnel proved very useful in collecting fleas from birds' nests. In a batch from a Wheatear's nest containing about 500 specimens the Hon. Miriam Rothschild (to whom we are again indebted for working on our material) discovered a filarid parasite of the genus Diplotriana, whose life-cycle is practically unknown.

A Blackbird's nest from the old croft at Barkland produced several ♂♂ Dasypsyllus g. gallinulae in addition to a strange flea which has not yet been satisfactorily identified. Two Eider Ducks' nests from the Green Holm off Malcolm's Head produced a couple of fleas, both very interesting in that they were Ceratophyllus borealis, the local representative of C. garei, which is the usual duck flea on the mainland (see p. 236).

After the breeding season C. gallinae, which had been scarce in the spring, turned up more frequently, and in July was as common as C. borealis (see table on p. 324). Then, and also later, its chief host was the Starling,

and the few fleas taken from migrant Blackbirds in October and November were of this species. The Wheatear continued to be the main host of C. borealis but this was also found on young Rock Pipits and once on a Meadow Pipit.

A curious honey-coloured flea which came from a Rock Pipit proved to be a rather rare variant Dasypsyllus g. gallimulae lacking in chitin. An interesting case of rapid reinfestation was shown by a juvenile Meadow Pipit, JC 566, from which we collected 3 ♂♂ and 1 ♀ Dasypsyllus on June 25th and 3 further ♂♂ on retrapping the bird next day.

The table shows the infestation in young birds in July. In addition to the species mentioned, a local Wren gave specimens of Dasypsyllus and C. gallinae on July 5th; a Merlin on September 4th had ♂ and ♀ of the latter flea; a Cuckoo on July 9th had a ♀ of the former; while Garden Warblers trapped on June 26th and July 4th gave 4 examples of the former and one C. gallinae.

TABLE.

Fleas: Summary of Captures,
July 1954

Host Species.	No.	D. g. gall.		C. gallinae		C. borealis	
		♂	♀	♂	♀	♂	♀
WHEATEAR	18	5	8	1	2	6	1
STARLING	6	1	-	1	5	-	-
ROCK PIPIT	47	22	29	1	2	3	2
MEADOW PIPIT	16	7	8	-	2	-	1
TWITE	3	2	2	-	-	-	-
Totals	90	37	47	3	11	9	4
		84		14		13	

103. A Heavy Mortality among Eider Ducks.

V.M. THOM and E.A. GARDEN.

During the first three months of 1955 some 25 Eider Ducks Somateria mollissima were found dead on the banks of the Ythan estuary in Aberdeenshire. The majority of these birds were 1st-winter ♀♀, and all were very emaciated. As it seemed improbable that death was due simply to starvation several of the birds were sent to the Ministry of Agriculture and Fisheries Poultry Research Laboratory for examination. Post-mortem study showed that all the birds were heavily infested with a worm Polymorphus boschadis, a member of the group of Acanthocephalus (Spiny-headed Worms). This parasite attaches itself to the intestinal wall, and if present in large numbers causes structural damage to the intestine, resulting in haemorrhage and death.

Reference to the literature has shown that although this worm has not apparently been recorded among Eiders in Britain, it has occurred in epidemic proportions among flocks in the Baltic. As far as we are aware the only known intermediate hosts of P. boschadis are a crayfish and a small freshwater shrimp, Gammarus pulex. It seems probable, however, that allied species of Gammarus inhabiting brackish and salt water may be involved, and it is hoped to discover whether this is the case.

While it is possible that this outbreak is purely local in character we should be glad to have reports, INCLUDING NEGATIVE RETURNS, of mortality among Eiders in other areas. Wherever possible details of age and sex of dead birds should be given together with a rough estimate of the number of Eiders in the area. If any fresh corpses are found, readers are requested to send them to the Ministry's Poultry Research Laboratory at Eskgrove, Lasswade, Midlothian, for post-mortem study, mentioning this investigation.

104. Collared Turtle Doves in Norway.

Under date January 25th Dr. Holger Holgersen writes: "You will certainly be interested to hear that we have five Eastern Collared Doves Streptopelia decaocto in Stavanger now, and have had them for at least a month. I have visited the two places they frequent and have watched them again and again. The first place is only about 100 metres from my house. In March 1951 I wrote a short newspaper article predicting that the species would soon appear in Norway. I first made an acquaintance with it in Milan last June, and the second time I saw the bird was close to my own house!"

This oriental species has extended its range to the westward through Europe with remarkable rapidity in recent years (see James Fisher, "The Collared Turtle Dove in Europe," Brit. Birds, 46: 153-181, for a full account and bibliography), and first appeared in north Denmark in 1948, breeding the next year. The most up-to-date account of its colonisation of this area is by Leif Lyneborg Jensen in Dansk Orn. Foren. Tidss., 48: 69-93 (May 1954). In Sweden the first was shot in 1949 and a ringed Danish bird was found on December 1st 1952. In that year, according to Carl-Fredrik Lundevall (see Bulletin no. 10, para 113), a pair nested in Skane, but it is likely that breeding also occurred there in 1951.

Two "first records" for Norway in 1954 were taken in spring, a Woodchat Shrike Lanius senator at Revtingen on May 28th and a Scops Owl Otus scops on board a fishing boat off Egersund on June 6th.

There has been a winter irruption of Pine Grosbeaks Pinicola enucleator in south-west Norway and Sweden (and also, together with other northern species, in the central United States of America). Nutcrackers have been unusually numerous in southern Scandinavia, including the normally rare Slender-billed Nucifraga caryocatactes macrorhynchus from Siberia.

105. The Pair Bond in the Twite.

KENNETH WILLIAMSON.

The pair-bond between mated Twites Carduelis flavirostris is so strong that it is quite usual in the summer months to take both members in one drive of the trap. Nesting pairs forage together, and are fairly easily caught; but if one should escape, a little patience is all that is needed, for the free bird will do all in its power to be re-united with its mate. It is no uncommon experience when passing the Double Dyke Trap to find a Twite "singing" from the top of one of the catching-boxes, and another of the opposite sex inside!

There is more than observational evidence of the extraordinary attachment of the mated pair, for the records of re-trapped birds give much support. JC 503, a ♀, and JC 504, a ♂, were taken together in the Double Dyke on May 30th 1954, and in the Observatory Trap on July 7th. Another mated pair was M 2983, ♂, and F 0520, ♀, caught in the Observatory Trap on May 8th and 27th 1953. She had been first ringed at the Haa on September 20th 1951 and re-captured at the Gully on August 23rd 1952; he was first caught at the Observatory on June 25th 1952 and subsequently re-captured on July 16th and August 20th, but with no evidence of who was the 1952 mate in either case.

In 1952 M 2724, ♂, and M 2974, ♀, were mated, and were caught together at the Observatory on June 7th, July 16th, October 1st and 11th, - showing that the pair-bond survives the moult and may last till quite late in the season. The ♂ was first captured on October 23rd 1951 and was last taken on July 7th in 1953, and on these occasions he was alone. His 1952 mate was twice captured in 1953, on May 12th and Sept. 9th, and as she also was alone on these occasions

the captures give no hint as to whether or not the mating survives to the next season. The case of ML 680, a ♀ from the Observatory Trap on August 11th 1952, suggests that it may not, for she was in company with ♂ F 0934 on that occasion, but was recaptured on June 25th 1954 with ♂ JB 517. On August 20th in the same season, the same two birds were again captured at the North Haven, but at different times.

106. Some Fair Isle Bird-Ringing Recoveries.

WATER RAIL Rallus aquaticus. A Continental ♂ caught and ringed at Fair Isle on October 24th 1954 was caught and eaten by the Lighthouse Keeper's cat at the ORKNEY island of Copinsay on January 12th 1955. Further migration had taken it only 55 miles to the south-west.

SPARROW-HAWK Accipiter nisus. A 1st-winter ♂ from the Double Dyke on September 2nd 1953 was recovered on November 20th in the same autumn at Voorschoten, near the Hague, HOLLAND, about 550 miles S.S.E.

SHAG Phalacrocorax aristotelis. One ringed in 1949 as a nestling was driven ashore at Porthfowan, in CORNWALL, by a westerly gale on September 23rd 1954.

OYSTER-CATCHER Haematopus ostralegus. A young bird marked on Eas Brecks in June 1953 was found dead at Eastriggs, by Annan, DUMFRIES-SHIRE, on February 11th of 1954; while another marked on Bunes in the same month was found at Elie, FIFE, on July 4th 1954. A second youngster of this same brood, 344.187, was "recovered" at the end of February 1955 under peculiar circumstances: the ring, attached by a split ring to a horn whistle, was found loose in the bottom of a mail-bag in Glasgow, and the G.P.O. are quite unable to throw any light on how it got there!

A bird ringed as young on Malcolm's Head on July 10th 1953 was found newly dead at Fintra Bay, near Killybegs, Donegal, EIRE, 450 miles SW. of Fair Isle, on January 30th 1955.

An adult caught on its nest in the "Eunson" (a giant Potter Trap) on Buness on May 28th 1954 was found dead on the seashore at Deerness, ORKNEY Mainland, on January 23rd 1955, about 70 miles SW. of Fair Isle.

BONKIE Catharacta skua. From Bermeo, Vizcaya, SPAIN, dated February 19th 1955, came this picturesque letter: "We have the honour to inform you that a month ago a fisherman from this harbour have caught at quay wave-breaker a black marine bird with an aluminium ring. We mourn no knowing the name of this bird." It was a Bonxie, 406.929, ringed as a chick on the Ward Hill on July 18th 1951.

ARCTIC SKUA Stercorarius parasiticus. A young bird reared by the Burn of Furse South pair in July of 1950 was found dead on Papa Westray, ORKNEY, 50 miles south of its native colony, in July 1954.

A bird colour-ringed as a nestling of the dark pair in Jarms Cup in July 1952 was recognised among the non-breeders at Fair Isle on June 16th 1954 and several later dates. It was in the barred immature pale phase plumage.

PUFFIN Fratercula arctica grabae. An adult taken from a nest at Wirvie on August 2nd 1951 was found occupying a burrow at the same place in July 1954.

LONG-EARED OWL Asio otus. A bird with wing 285 mm. and weighing 333 gm., caught in the Gully Trap, November 6th 1950, was shot at Hundvaag, Stavanger, in south-west NORWAY, on December 8th 1954. As with some of our passage-migrant Blackbirds, this late recovery suggests a habit of "partial migration" (see p. 132).

SONG THRUSH Turdus ericetorum philomelos. A bird was trapped in Vaadal at the very light weight of 51.82 gm. on October 20th 1954, after a cyclonic drift from the Skagerrak or SW. Norway; and it was killed at Andernos, Gironde, FRANCE, about a thousand miles south, on November 14th of the same year.

An adult caught in Vaadal on October 27th 1951 at the good weight of 74.06 gm. was killed by a cat at Belmonte de Miranda, Asturias, SPAIN, about 1,150 miles south, in early December 1954.

ROCK PIPIT Anthus spinoletta petrosus. A local juvenile, trapped at the Observatory on July 12th 1954, was found dead at Canisbay, Duncansby Head, CAITHNESS, on January 24th 1955. This is only the second Rock Pipit, out of nearly a thousand ringed, to have been recovered off the isle, and in both cases the birds were wintering in Caithness.

MEADOW PIPIT Anthus pratensis. A migrant bird ringed on September 17th 1954 from Vaadal Trap (weight 14.9 gm.) was found dead at Dar Caïd, near Casablanca, MOROCCO, about November 18th. This, at a distance of 1,880 miles from Fair Isle, is the furthest south of our nine foreign Meadow Pipit recoveries.

A ♀ with wing 73 mm., taken in the Observatory Trap on September 9th 1954, was recovered near Jerez de la Frontera, Cadiz, SPAIN, on December 13th. It is our second recovery in this locality, 1,640 miles south.

STARLING Sturnus vulgaris. Three local birds have been recovered in the present winter in ORKNEY. A juvenile trapped in the Double Dyke on July 24th 1953, and a bird ringed on September 28th in the same season, were found dead on Westray; and a young ♂ marked on September 17th 1954 was killed by a bird of prey at North Ronaldshay on December 6th.

107. Recoveries of Blackbirds Ringed at Fair Isle.

Log for October 20th 1952: "Too rough today for the "Good Shepherd" to make her scheduled run, so Edward Skinner got another day, - and a good thing too, since it proved to be our record trapping day of the autumn with 64 birds, 61 of them Blackbirds. We were south in the afternoon, but our hunt for the Bullfinch was in vain. Three or four Northern Chiffchaffs are still on the isle and three Siskins were new birds for the autumn. There was an increase to about 40 in Bramblings, and altogether there were nearly a score of Chaffinches in scattered groups on the stubbles. Redwings, Fieldfares and Blackbirds showed a big increase, and most of the last came in during the afternoon. We returned north, having ringed 7 at the Haa, and on our way took 5 in Vaadal. At the Gully we found Esther emptying the box, in which she had half-a-dozen birds: she had been at the Gully half-an-hour before and had taken 8 away. When the trap was cleared Edward and I did the Gully again and got another 5 birds, and it was quite late by the time we had finished in the lab. We roosted 16 birds."

Log for October 21st 1952: "I was up before light to re-weigh and release last night's roosters. One bird, 88.6 gm. at 0600 hrs., was retrapped at 1015 hrs. and had gained 12 gm.! The "Good Shepherd" left at 0830 hrs. with Edward Skinner, our last visitor, on board."

Three of the 61 Blackbirds taken during this very profitable spell of ringing have since been recovered. An adult R 7352 has already been reported, from a small isle near Vaagsø, NORWAY, on February 20th 1954 (p.132). A 1st-winter ♂ caught in the same drive of Vaadal Trap and ringed R 7351 was taken in a snare at Brandsberg, Hauge i Dalane, NORWAY, on November 2nd 1954; and a 1st-winter ♂ from the Double Dyke on the same afternoon was found dead at Hedemark, Bouling, Farre, DENMARK, on 17th October 1954.

A ♀ ringed on November 19th 1951 at the Double Dyke was reported from Neumunster, Schlesvig-Holstein, GERMANY, 600 miles SE., on April 10th 1954. This is our first Blackbird recovery from Germany, but it is possible the bird was on northwards migration to Scandinavia.

An adult ♀ from the Gully on October 28th 1952 was found dead at Brough, Cullivoe, on the SHETLAND isle of Yell on January 22nd 1955. This is the first example of what is in all likelihood a migrant bird being found in the Shetland area in a subsequent winter. Late October 1952 was a period of cyclonic weather with winds mainly fresh to strong south to south-east at Fair Isle.

Two birds ringed in autumn 1953 were recovered wintering in 1955 in the northern part of IRELAND. A 1st-winter ♂ caught in the Gully on October 20th was found dying at Knocknoyle, near Omagh, Co. Tyrone (about 400 miles SW.) on January 23rd; and a 1st-winter ♂ at the Haa on November 3rd was found dead at Kerry Keel, Letter Kenny, Co. Donegal (about 390 miles SW.) on February 22nd.

A 1st-winter ♂ at a very good weight, 117 gm., trapped at the Observatory on October 23rd 1954 (a day when re-determined passage was taking place) was caught at Gallanagh, Oban, ARGYLL, on January 16th 1955, and was released with the ring. This is 260 miles SW.

FAIR ISLE BIRD OBSERVATORY

The Work of the Observatory.—The purpose of the Bird Observatory is to provide facilities for visitors to carry out scientific research on the island, not only in the sphere of ornithology, but in every aspect of Natural History. Work will be mainly concentrated however on ornithology under the supervision of the Director.

The Hostel.—The Hostel has accommodation for ten observers. It is sited at the North Haven, the main landing-place, and consists of a group of well-constructed timber buildings formerly occupied by the Royal Navy.

Terms.—Full board, including service, is SEVEN GUINEAS PER HEAD PER WEEK. Reduced terms are available for parties of students from schools and universities. These terms include use of bicycles, bird-rings, and other Bird Observatory equipment, but do not include hire of motor transport or small boats whilst staying on the island.

Catering.—Breakfast is served at 9 a.m., lunch at 1 p.m., and supper at 6.30 p.m. Facilities for early morning and late evening refreshments are provided in the hostel sitting-room.

Applications.—Priority in bookings will be given to "Friends of Fair Isle," and to *bona fide* naturalists prepared to take part in the scientific investigations of the station under the leadership of the Director, and to help with such other duties as may be necessary from time to time in connection with the station or hostel. Anyone else wishing to visit the island will be made welcome, provided room is available. Those who are not keen ornithologists are asked to book for the summer months—June, July, and August—so that more accommodation will be available in the Spring and Autumn for students of bird migration. Application should be made as follows:—

(1) If made between 1st April and 31st October.

To the Director, Fair Isle Bird Observatory, by Lerwick, Shetland. Telegraphic address: "Migrant, Fairisle." Telephone: Fair Isle 8.

(2) If made between 1st November and 31st March.

To the Director, Fair Isle Bird Observatory Trust, 17 India Street, Edinburgh. Telephone: Edinburgh CENTRAL 4532.

Prospectus.—Giving details of transport to and from Fair Isle, and other information, will be sent on application.

Publications.—The Trust publishes an *Annual Report* which is sent to all subscribers. *Bulletins* are also published at regular intervals and are obtainable free by subscribers who indicate their wish to have them.

FAIR ISLE BIRD OBSERVATORY

0 100yds. 440yds. 880yds. 1 mile

Roads Bird Trap Boundaries

