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FAIR ISLE BIRD OBSERVATORY

BULLETIN

Edited by

KENNETH WILLIAMSON

Director

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Fair Isle Bird Observatory Bulletin, Vol. 3, No. 2
May 1956

C O N T E N T S

18. "White-winged" Arctic Skuas.

At the beginning of the 1955 season we lost the most interesting member of our Fair Isle skua colony, the "white-winged" mutant ♀ of the Burn of Furse North pair. Although a dark morph she had a number of white feathers at the carpalia and in the lesser coverts, a round white patch in mid-belly, and small white spots on the chin and under the eyes. In early May she was with her dark-plumaged mate on their territory, and on the morning of 21st was seen sporting with other skuas above Homisdale. An hour later, when searching for her nest, I found her body, newly dead. How she died is a mystery, - but her loss has brought to a halt (we hope only temporarily) an interesting natural experiment, for her breeding record over 6 years has provided the only available data on the inheritance of this mutation.

Every year since 1949 the pair had hatched two young, one apparently normal, the other with the same albinistic markings as the ♀ in both down and juvenal plumages. (1951 was an exception, both chicks being mutants). Normal young flew at the site in 1950 and 1952, the latter a pale morph, and "white-winged" ones were reared in 1949, 1953 and 1954. It was perhaps one of these which we saw on several occasions among the non-breeders in 1955: if so, then there is a chance of our loss being made good in a future season.

The fact that she reproduced her own kind each year prompted us to look further for evidence of this "white-winged" variety, and examination of the British Museum and other collections has brought a number of examples to light. Both dark and pale morph variants have been collected at Godhaab in Greenland, and are known from Iceland and the Faeroe Islands (where I saw a dark bird like our own in May 1953), Shetland, Orkney and Caithness. An American museum has a pale mutant collected on migration at Cape Cod, Massachusetts, and in the Berlin Museum is a dark bird shot from hard-set eggs at Namsos in Norway. The two oldest examples are Faeroe birds dated 1875 and 1879.

K.W.

19. The Arctic Skua Study in 1955.

KENNETH WILLIAMSON.

The Arctic Skua Stercorarius parasiticus colony continues to grow, but its increase has not been evenly spread over the years. In 1949, the first season for which we have an accurate figure, there were 20 pairs, and only 2 additional pairs joined in 1950. The next season saw a slight rise to 26, and from 1952 to 1954 the population was fairly stable at just over 30 pairs. The increase in the present season, by 10 pairs to 44, is therefore remarkable.

In all, these 44 pairs laid 75 eggs, and so far as we know succeeded in rearing 53 young, i.e. 70.66% of the total eggs laid. This figure is probably a little high, for it is not possible to be sure that every youngster which flies eventually leaves the island: such casualties as are known to have occurred in the post-fledging period have been taken into account. There are some complications. In actual fact, one pair probably did not lay an egg at all - though they succeeded in rearing a chick, a seeming paradox which is fully explained in the paragraph devoted to SUKKA MOOR MIDDLE. Another pair, PLANTACRUBS, had 3 eggs during the season but failed to rear a chick; a third, BURN OF FURSE NORTH, put their two eggs in differnet nests; and at one site, VATSTRASS, two healthy youngsters were raised by a single adult. The events at these and a few other selected sites are summarised below.

By far the most gratifying feature of the present season is that no less than 6 (and possibly 8) of the new breeding-birds had been first ringed as chicks in a former season. Thus we obtained the first direct evidence that a proportion of the youngsters subsequently return to their colony of birth. Of these, one is now 5 years old, 2 are in their 4th summer, and 2 are 3rd-summer birds. Owing to the loss of its numbered aluminium ring, a sixth could not be identified. Two birds with aluminium rings only, and which we failed to trap, are almost certainly young of a previous year: had we got them, the figure for new breeders identified in this way might have been as high as 20%.

It is clear that the birds are losing their butted No.3 aluminium rings, but our experience during the past year leads us to hope that the rate of loss may not be so serious as we had feared. The "double-ended 3", which has two identical inscriptions, one overlapping and so protecting the other, is now being used for skuas and we hope the double thickness of aluminium will give the rings a longer life. The butted No. 3 rings taken from birds retrapped in 1955 were all perfectly legible but had worn very thin due to sea-water corrosion. The loss in weight in 3 cases was between 35.4 and 38 per cent, in 2 others only 25.4 and 30.9 per cent, and was not correlated with their age. The plastic colour-rings become very brittle after a few years and purple, green and red fade to blue, yellow and pink in a very short time. Their use on young birds, which may not be retrapped for three or more seasons, is a waste of time; so we use them now only on adults which we can take, if need be, at the nest each season.

The policy of trapping and colour-ringing the nesting adults, begun in 1954 and continued in the present season, is already having very interesting results. The trapping is done by means of a clap-net operated from a hide placed 10-15 yards from the nest: dummy eggs are substituted for the bird's own, which are kept warm in cotton-wool. Most birds overcome their suspicion fairly quickly, few taking more than half-an-hour to return. At the end of the 1955 season all but 9 of the 87 breeders left alive carried both numbered and coloured rings. An analysis of the 1955 data based on the ringing done in 1954 gives the following information.

Entirely new pairs nesting in 1955 numbered 14, or 31.8% of the total. There was some re-shuffling among the old-established pairs due to the failure of 1954 partners to return, and this resulted in 7 changed matings. In two cases the surviving members of adjacent pairs joined up on the territory of the ♂ bird (this may also have happened in a third instance), whilst in other cases the survivor attracted one of the previous year's non-breeders. Birds ringed as non-breeders at the Airstrip Pool in 1954 and re-

trapped at nests in 1955 numbered 6 of the total of 15, an excellent return. The summer drought of 1955 completely dried up this bathing-pool for most of the season, so that we were unable to add to this useful source.

Of the 35 nesting-birds colour-ringed in 1954 7 did not return, suggesting a loss to the colony of about 20% of its effective breeding-stock. This seems high for a species which does not attain maturity until the 3rd and 4th summers, but more reliable data from larger samples will be forthcoming in future years.

Pale morphs made up 25% of the total, an increase on previous years (15% on 1951, 20% in 1952, 23% in 1953) and three of the matings were "double-pale".

Events at Selected Sites

BURN OF FURSE NORTH. Early in the season there was tragedy at this site for on May 21st we lost the ♀ "white-winged" mutant (see p. 50). There was an unringed dark morph with the dark ♂ at this site on May 24th-25th, but the ♂ was alone on most days in early June. From June 9th an intermediate bird was usually in his company, and on 12th this bird rose from a one-egg nest.

By the afternoon of June 16th we felt sure that a second egg would not be laid, so we set the clap-net and caught the new bird. Two days later, when crossing this territory, we chanced upon another one-egg nest about 40 yards from the first. The eggs in both were quite warm. During an hour's watch from a hide on the hillside above the ♀ showed no interest in either nest, and the ♂, after looking as though he would settle on the first, finally went down to the new nest. Our intervention must have upset the ♀ when she was nearly ready to lay a second, delayed egg. We put the first-laid egg in the new nest, but by July 11th, when the second was hatching, it was clear that the older one was addled.

EAS BRECKS EAST. There was little sign of activity at this old-established site, occupied since 1948, in mid May, though this has always been one of the earliest pairs.

A changed mating provided the reason. In 1954 we put colour-rings on one of the pair, and this bird returned. The 1955 nest was found on May 25th, and it was with some excitement that we saw a single ring on the new bird, suggesting that she was a previous year's chick. When we caught her on June 3rd she proved to be 337.789 - marked as a "very dark-looking youngster with belly-feathers sooty to base" at Furse Hillside in 1951. She is now a typical dark morph, breeding for the first time in her fourth summer.

In 1951 the Furse Hillside pair lost their first clutch to a predator, and our bird was the junior chick of a replacement clutch hatched on July 18th. The young were colour-filmed by Mr. G.T. KAY when I ringed them on July 29th. The dark youngster flew on August 17th, F.P. 30 days, and both were still on the moor on September 5th. Our bird was last seen on the evening of 7th, a very late date, accompanied by one of the parents.

It is interesting to note that whereas her parents were never known to attack a human intruder, this bird proved strongly aggressive in defending nest and chicks, often stooping at our heads as we cycled along the road. Her young hatched on June 20th and flew after 29-30 days.

HOMISDALE N.E. A new site at the very centre of the colony, sandwiched between Burn of Furse South and the older Homisdale territories, and maintained solely by the sheer pugnacity of its owners. They are dark X intermediate morphs, the latter an inveterate trouble-maker. On June 13th we caught this bird after a long wait, during which it persistently harried neighbours both on the ground and in the sky, and showed little inclination to return to the nest. These pursuits not infrequently involved six or more skuas who filled the sky with their yodelling cries and "ya-wow" anger-notes. The bird proved to be 337.696, senior chick of Airstrip North in 1951. The plumage and soft parts still showed features of immaturity. The single egg hatched on July 1st and the youngster flew after 28 days.

SUKKA MOOR MIDDLE. Last season the middle section of Sukka Moor was occupied by a pair of non-breeders, pale X dark, and they were back in 1955. At the end of May and in early June one or the other (or both) gave vigorous "injury-feigning" displays whenever we went across their territory. But, search and watch as we might, we were quite unable to find a nest.

As I watched from a distance on June 16th, the dark bird gave the impression of settling on a nest and brooding. I went to the spot, and there was a good deal of distraction display, but found only a bare scrape between two hummocks of wiry grass. The bird returned when I went away, and appeared to be enlarging the scrape by pivoting around on her breast. She was sitting there again on 17th and next day had lined the scrape with grass-stems. A bit of flattened cartridge-case, lying outside the nest on 16th, and in it on the following day, now lay outside it on the opposite quarter. By 21st it was back in the nest, and the birds were assiduously brooding and picturesquely "injury-feigning" in its defence!

Next day we put a hard-boiled hen's egg in the nest, and the pale bird accepted it at once. We often looked towards Sukka Moor as we went our rounds on 24th, and always one or the other partner was sitting. This was most satisfactory, for the dark bird had colour-rings and it was necessary to trap her, for owing to fading there was some confusion of identity with another bird. She was caught easily enough on 25th, and was found to have fully developed brood-patches. She had been ringed at the Pool beside the Airstrip on June 20th 1954.

We left the hen's egg in the nest and the pair sat on it until well into July. We then decided that if the young Breedpiece pair, whose territory lay adjacent to a Bonxies' just across the moor, showed signs of hatching both eggs, we would transfer one to the Sukka Moor pair. The Breedpiece eggs were chipping on 14th, so one was put in the Sukka Moor Middle nest that evening. The adopted chick hatched early on July 18th, - the last chick on the isle to break its shell in 1955. It flourished, and on August 18th took its maiden flight.

SWEY SOUTH. One of the highlights of the previous season had been the return to the isle of a pale morph in immature plumage which fortunately had retained the complete set of rings put on it as a chick at Jarm's Cup in 1952. It did not establish a territory in 1954, but took a dark mate in the present season. They had a one-egg nest on Swey, and reared a chick. We caught the pale bird on June 13th and the old ring, 344.119, confirmed its identity. This was the only pale juvenile which the intermediate adults at Jarm's Cup ever produced.

JARM'S CUP. This site, occupied since 1951, had a changed mating, the original ♂ (known to us as a non-breeder in 1950) attracting the intermediate ♀ from Vatstrass South when their respective partners failed to return. (All four birds were ringed in 1954). A similar fusion of two neighbouring pairs took place on the next-door territory, the surviving dark ♂ at Homisdale East attracting the pale ♀ from Homisdale North.

VATSTRASS. With the failure of the 1954 Vatstrass South ♂ to return and claim his territory the Vatstrass North pale X intermediate pair took possession of it and hatched two young at 0900 hrs. and 1800 hrs. on June 18th. The pair still showed allegiance to their old ground and would cross the valley to attack anyone walking there. They were a pair to avoid, seldom failing to drive home their attacks. This courageous spirit may have been the pale bird's undoing, for she was found beneath telephone wires in Vatstrass on the morning of June 21st with a badly-smashed wing. We had to give her a lethal dose of chloroform, and - like the "white-winged" mutant from Burn of Furse - she is now in the Royal Scottish Museum collection. The ♂ continued to care for the chicks and it is greatly to his credit that he succeeded in rearing both single-handed, the birds fledging in 30 and 30½ days.

PLANTACRUBS. A laying completed by May 31st was lost to a predator before June 9th. The pair was seen in cop. on 16th and a single-egg replacement was found on 20th, but ill-luck dogged the pair, and the youngster, hatched on July 14th, survived only 3 weeks or so.

20. Passerine Migration at Fair Isle in Autumn 1955.

KENNETH WILLIAMSON.

The first evidence of warbler migration at Fair Isle came a fortnight later than in 1954, when a small movement of Willow and Garden Warblers took place on August 10th (Bulletin, 2: 215-219). At that period in 1955 a high pressure system covered the British Isles and Norway, and although this stimulated the first passage of Wheatears Oe. oenanthe, the only unusual bird was a ♀ Black Redstart Ph. ochruros gibraltariensis trapped on August 11th.

The first Willow Warbler Phylloscopus trochilus was seen on 18th, following a Pied Flycatcher Muscicapa hypoleuca on 12th and a Whinchat Saxicola rubetra on 15th. A second Willow Warbler appeared on 20th, and a Reed Warbler Acrocephalus scirpaceus was trapped. This was also during an early peak of Wheatear passage from Shetland in anticyclonic weather, and it was not until 22nd that any marked drift took place.

This influx followed the movement of an anticyclone across Forties to Scandinavia, where the normal pattern of an easterly wind in the Skagerrak, backing southerly in the approach to Fair Isle, developed on 21st-22nd. Ten Willow Warblers were noted, 8 being trapped, and other migrants were a second Reed Warbler, 2 Whinchats, a Redstart Phoen. phoenicurus and 2 Pied Flycatchers. They were present on the following day when the Whinchats had increased to 4, the Willow Warblers to 25, and 6 Garden Warblers out of 12 seen were trapped. The first drive of the Gully produced yet another Reed Warbler, a species very rare at Fair Isle and of which none had been caught since 1951.

Willow Warblers were down to 6, and Whinchats and Garden Warblers to single birds, on 24th, though the anticyclonic weather held for several days. The lack of any extensive drift was probably due to exceptionally calm and clear sky conditions at night in south Norway and Denmark as shown by the weather-maps for August 23rd-26th.

It is likely that the first of the autumn Barred Warblers Sylvia nisoria, trapped on August 26th, was a drift-migrant from Denmark in this anticyclonic airflow, and the same holds for a Rosy Pastor Sturnus roseus seen in the early morning near the North Lighthouse, and on later days in the village area. Two Garden Warblers, 3 Whinchats and 6 Willow Warblers on 27th were probably on redetermined passage, and 5 Swifts Apus apus appeared.

A ridge of high pressure coming in from the west touched off the biggest passage of Wheatears we have had on this day and the next. There was a second Barred Warbler on 28th, and a record "bag" of 106 Wheatears was crowned at dusk by the second Turtle Dove Streptopelia turtur to be trapped in 7 years. Two Barred Warblers, 6 Willow Warblers and 3 Pied Flycatchers on 30th were on redetermined passage, and this also applies to the first Common and Lesser Whitethroats Sylvia communis / curruca and a Scarlet Grosbeak Carpodacus erythrinus on Sept. 1st.

Another high, moving over the North Sea to Norway, gave us a light S.SE. airstream late on September 7th; but there was practically no cloud and the wind was very light in the Skagerrak, and arrivals next morning were few, 2 each of Barred and Garden Warblers being the only passerines of interest. The 9th was disappointingly quiet, for although the S.SE. wind held overnight, the airstream on the Continental coasts from Belgium north became light SW. However, an occluded front, crossing the North Sea during the day, brought fog patches to the Skagerrak and on 10th a few more birds rewarded our search. There were 4 Pied Flycatchers, the first Tree Pipit Anthus trivialis and Blackcap Sylvia atricapilla of the autumn, 2 Garden and 5 Willow Warblers, a Whitethroat and some 8 Whinchats, this representing their autumn peak. A most unusual arrival for the time of the year was a Shore Lark Eremophila alpestris. As the wind at Fair Isle, though light (force 2), veered to the west overnight on 9th, it is probable that these birds were drifted off course during a diurnal movement out of Norway, reaching Shetland before nightfall on 9th.

The mid-month period September 14th-16th produced a remarkable array of birds considering the weather involved A low, in the Heligoland Bight on 14th, moved to Denmark and during the next two days there was SE. wind across the southern Baltic and south Sweden, becoming easterly in the Skagerrak and along the Norwegian coast. There were two Pied Flycatchers on 14th and a Brambling Fringilla montifringilla followed by a ♂ and ♀ on 16th, when 2 Garden and 2 Willow Warblers and 3 Whinchats were also present. A second Shore Lark was present on 17th-18th and also on 21st.

This low receded eastwards on 16th, leaving us with calm col conditions. Four surprising "southern elements" appeared. Fair Isle's first recorded Melodious Warbler Hippolais polyglotta was caught at the Haa in mid-morning, and at the same time an adult ♀ Lesser Grey Shrike Lanius minor was found between Setter and Field. A second adult ♀, showing more black on the forehead, was trapped at the Haa on the next afternoon. Two Barred Warblers were also trapped on 16th (after one on 15th) and a Wood Warbler Ph. sibilatrix (always a rarity at Fair Isle) was seen. It is likely that these birds had travelled to the north out of eastern France and south Germany ahead of the active cold front of the low as it pivoted north-east on its centre in Jutland. A fuller discussion of this event will be given in British Birds. There is only one previous record of a Melodious Warbler in Scotland (the Isle of May, September 27th 1913), and although there are 9 previous records of Lesser Grey Shrikes in the country (7 of them at Fair Is.) none has come to our notice since the Observatory opened in June 1948.

After some days of cyclonic westerly wind and rain, better conditions were introduced by an anticyclonic ridge extending north-westwards from Germany, but redetermined passage was very slight, consisting of a few Whinchats, ♀ Blackcap, Garden Warbler and Whitethroat. Occluded fronts moving across the North Sea on 21st and 23rd gave us south wind, but once again arrivals were few, 23rd being the best day with 2 Song Thrushes Turdus ericetorum, 2 Bramblings, Scarlet Grosbeak, Tree Pipit, Redstart, Spotted Flycatcher

Muscicapa striata, Wryneck Jynx torquilla, and Sand Martin Riparia riparia. The first Bluethroat Luscinia svecica was observed next day, and on 26th there were 3 at the isle, with single birds on the next two days and 2 on 29th. In all likelihood these had reached Shetland on 23rd or so, as there was west wind continually from 24th to the end of the month.

The first Yellow-browed Warbler Phylloscopus inornatus was found on the summit of Ward Hill, sheltering among ruins of the war-time Radar Station, on October 4th, when calm col weather succeeded the passing of a low across Forties. Two Willow Warblers also appeared. An occlusion which crossed the North Sea that night combined with a small depression in Denmark to create some fresh drift in the Skagerrak region and Heligoland Bight, with the result that several interesting birds were in Shetland on October 5th. The first small influx of Turdidae took place, with Redwings T. musicus some 200 strong. In mid-morning a Red-breasted Flycatcher Musc. parva was manoeuvred into the Observatory Trap at about the same time that incoming and outgoing Observatory visitors were watching another in the gardens of Sumburgh House. Other arrivals were 3 Whinchats, a Robin Erithacus rubecula, Goldcrest R. regulus and 3 Yellow-hammers Emberiza citrinella.

That night a depression moving quickly eastwards from the Atlantic crossed southern Scotland, its occluded front and associated rain spreading northwards through the North Sea. At midnight the front reached south-eastwards from John O'Groats to the Hook of Holland, and in the SE. airstream between it and a quasi-stationary front outside the Skagerrak considerable drift took place. A moderate "rush" of some 2,000-3,000 Redwings appeared on 6th, with a small influx of Blackbirds T. merula, ca. 500 Fieldfares T. pilaris (a notable increase on the previous day), and about 50 Song Thrushes (twice the number recorded on 5th). There were also 6 Whinchats, 2 Redstarts, 7 Blackcaps, 2 Whitethroats, single Willow Warbler and Chiffchaff, young Red-backed Shrike Lanius collurio, Siskin Carduelis spinus, 50 Chaffinches Fringilla coelebs and some 400 Bramblings.

Pride of place was taken, however, by the bird described in Bulletin, 3: 3-4, the Thick-billed Warbler Phragamaticola aedon, a species not previously recorded in Europe.

This low moved across the North Sea during 5th and further immigration may well have reached Shetland before nightfall by the "Forties cyclonic" approach from western Norway. At night a wedge of high pressure moved in from the south and brought a change of wind to SW., and on 7th a noticeable decrease in the Bramblings and Turdidae took place. The only new bird seen was a Scarlet Grosbeak.

Calm conditions prevailed on the evening of 7th but SE. wind developed at Fair Isle between a Baltic high and a low situated south of Iceland. The early drive of the Gully on 8th produced a curious "bag", - Song Thrush, Wood Pigeon Columba palumbus, Meadow Pipit and a 1st-winter Lesser Grey Shrike, the third of the autumn. Two Robins and one of the few Tree Pipits seen during the autumn were also trapped on this day.

With the wind falling calm in Shetland on 11th some redetermined passage developed and 7 Blackcaps, as well as single Red-breasted Flycatcher, Robin, Redstart and Garden Warbler appeared. A Yellow-browed Warbler was found in Taft turnip rig on 12th and next day there were two, one in a similar crop at Busta. Redwings also increased in number during this spell.

There were no substantial changes for a week or so, when a depression approaching Northern Ireland created a SE. airstream in the North Sea. Turdidae increased on 19th-20th, the first Blackbird rush developing: some 250 Chaffinches, 50 Bramblings (200 on 21st), 50 Snow Buntings Plectrophenax nivalis and 40 Goldcrests were also recorded. Additional species were a Woodlark Lullula arborea, 4 Reed Buntings Emb. schoeniclus, a ♀ Black Redstart, 3 Blackcaps (increasing to 12 on 20th), a Greenfinch Ch. chloris (3 on 22nd), 2 Great Grey Shrikes Lanius excubitor, and several Jackdaws Corvus monedula, - none with the pale collar of the typical race. There was at this time a Short-toed

(concluded on p. 65)

21. A Final Report from Foula - Summer and Autumn 1955.

C.K. MYLNE.

No observations were made on Foula from July 18th to September 14th, as I was absent from the island. Before I left there were a few midsummer visitors of interest; there was a NIGHTJAR Caprimulgus europaeus in the Manse garden on July 7th-8th, a QUAIL Coturnix coturnix calling on 8th and a CORNCRAKE Crex crex on 15th. Perhaps the most unexpected was an immature ICELAND GULL Larus glaucoides, seen around the Voe from July 10th to 13th feeding with a horde of gulls and skuas round the Scalloway fishing-boats at the pier.

In the autumn, records were kept only in the period September 14th to October 3rd. In the first week the isle was well covered with the help of I. BALFOUR-PAUL and J.H. HYATT, but after their departure on 19th my observations were restricted by preparations for my final departure from the island.

On the journey north from Aberdeen on September 8th we had noted about 30 MANX SHEARWATERS Procellaria puffinus and one SOOTY SHEARWATER P. grisea off Buchan Ness, all to eastward of the boat and about 5 to 10 miles out from the coast. They all flew north as far as they could be seen, mostly in twos and threes and a few singly.

On arrival in Shetland some evidence of migration was seen, especially on two visits to the big plantations at Kergord. On 9th a number of warblers and finches were seen under ideal conditions: on 12th a fresh wind made observation difficult, but the numbers seemed to be down:

		September 9th	12th
Barred Warbler	Sylvia nisoria	1	1
Garden Warbler	S. borin	1	-
Willow Warbler	Ph. trochilus	4	-
Pied Flycatcher	M. hypoleuca.	1	2
Chaffinch	Fringilla coelebs	4	1
Brambling	F. montifringilla	1	-

A comparison with the records from Fair Isle over the same period (see p. 58) is interesting, for BARRED and GARDEN WARBLERS arrived there on 8th, and it is just possible that part of the peak movement at Fair Isle on 10th was due to redetermined passage out of Shetland, a light westerly wind prevailing. Farther west on 12th, at Tresta, a PIED FLYCATCHER and a large redpoll, probably a GREENLAND REDPOLL Carduelis flammea rostrata, were seen in a patch of trees and bushes.

Our arrival at Foula on September 14th coincided with easterly weather and a fair number of migrants were seen up to 17th. Apart from hordes of redpolls far in excess of Fair Isle's quota, other species were represented by individuals only (so often the case at Foula), - Willow Warbler and Whinchat Saxicola rubetra on 15th, Garden Warbler, ♀ Scarlet Grosbeak Carpodacus erythrinus, Brambling and RUFF Philomachus pugnax on 16th. There was an exception in a party of ten LAPLAND BUNTINGS Calc. lapponicus found on the east cliffs on September 16th, as compared with a maximum of 3 at Fair Isle on 10th with one only left by 15th. These Foula birds, the only species apart from the redpoll to be seen in larger numbers than at Fair Isle, probably arrived from the north-west in the same movement as brought an influx of redpolls to Fair Is. on 10th. However, by contrast with this same day, 16th, Fair Isle - clearly visible across 45 miles of calm sea - was making up for the deficiency with a galaxy of southern rarities none of which filtered through to Foula. Our observations were much more thorough than usual with three ornithologists in active pursuit of just such migrants!

A small redetermined passage through Fair Isle on 19th and 20th, after two days of cyclonic conditions, had no equivalent on Foula; but new arrivals of drift migrants in frontal conditions from 21st-23rd were similar, though with smaller numbers on Foula. These included a LESSER WHITETHROAT Sylvia curruca and RED-BREASTED FLYCATCHER M. parva on 21st, and on 23rd a Redstart Ph. phoenicurus and SCARLET GROSBEAK which coincided exactly with individuals of the same species at Fair Isle.

Thereafter my records were as few as my observations. A BLUETHROAT Luscinia svecica was seen and very accurately described by Mrs. RATTAR of North Biggins on September 29th, a day when there were two at Fair Isle, - all probably arrivals during the previous week, for the wind during those last days on Foula was predominantly in the west.

I left on October 3rd, unwillingly and on doctor's orders. It is hoped to publish a fuller account of the birds of the island elsewhere; but it seems appropriate to record here my sincere thanks firstly to the Fair Isle Bird Observatory Trust in general, and to the Director in particular, for much encouragement, advice and practical help in providing equipment for trap-building, ringing and record-keeping. And secondly to the islanders for their interest and tolerance, and their frequent (and often very accurate) observations, without which much of my own work and many of my records would have been impossible.

(concluded from p. 61)

Lark Calandrella cinerea and others were seen in November, as recorded in Bulletin, 3: 14. There were Rooks Corvus frugilegus on the island, and we trapped one (our first Corvid) on October 31st, appropriately enough in the new "Axell" Crow Trap at the North Haven.

A fine ♂ Northern Bullfinch Pyrrhula p. pyrrhula was caught in a Roadside Trap on October 29th and others were recorded in late October and November in the south of Shetland (Levenwick, Mrs. J. HAMILTON; Lerwick, G.T. KAY; Sumburgh, WM. HORNE). There were two ♂♂ on Ward Hill on November 10th and a ♀ was seen on 20th (JAMES A. STOUT), whilst another ♀ was present in February 1956. (JAMES WILSON). The only Waxwings Bombycilla garrulus, 3 in number, were seen on November 12th. Some Fieldfares and Blackbirds, with a few Song Thrushes and Goldcrests, arrived at the isle on the following day.

22. Migration from the North and North-west in Autumn 1955.

KENNETH WILLIAMSON.

There were a number of interesting features about the movement through Fair Isle in 1955 of migratory birds from Shetland, Faeroe, Iceland and Greenland. The most satisfactory was the great strength of the Wheatear exodus in late August, followed by good movements of leucorrhoa in early and mid-September. At the peak period, August 27th-29th, we ringed 172 Wheatears (106 of them on 28th), and the season's total for this species was 761 birds.

Passage of Greenland Redpolls was also unusually strong and protracted, lasting from the end of August to early December. We ringed a greater number, 21, than in any previous season. The invasion was much more marked on FOULA (45 miles nearer to Greenland!) in the first half of September, over 100 being present according to C.K. MYLNE. Similar "irruptions" were noted at Fair Isle in 1905 and 1925. An analysis of the autumn immigration of this bird, with special reference to the 1955 "irruption" will be published in Dansk Orn. Foren. Tidss.

We saw more goose migration than usual, the species concerned being mainly Pink-footed, Grey Lag and Barnacle Geese; there was a tremendous influx of Snipe on October 1st, and Long-tailed Ducks were decidedly commoner than in previous years. On the other hand, the Lapland Bunting - common in some years, and abundant in 1953 - was exceptionally scarce, and very little of the Snow Bunting passage appears to have come from the north-west. Having trapped 36 Iceland Merlins in the previous 3 years, it was a great disappointment to get only two in 1955.

The weather-patterns which bring these north-west populations into our area have been described in previous publications, - notably Scot. Nat., 65: 65-94 (general), Brit. Birds, 47: 434-441 (Iceland Merlin), and Brit.Birds, 49: 6-25 (Lapland Bunting). Briefly, we can group them as follows:

A. Cyclonic drift from south or east Greenland in a westerly airstream of the southern part of a depression in the Denmark Straits or Iceland region; similarly from Iceland with a low centred east of that country.

B. Anticyclonic drift round the north-eastern perimeter of a ridge of an Azores high, with a westerly wind from Greenland veering northerly in the Iceland - Faeroe area; or from Iceland in the northerly airflow between an anticyclonic ridge from the south and a depression situated over northern Norway.

C. Direct southward movement from Iceland - Faeroe under clear anticyclonic conditions firmly established in this region, either an eastwards-moving high from the Atlantic or a ridge extending north-west from Europe.

D. Direct southward movement through a fine-weather col, usually between highs over Greenland and Britain, and lows over Scandinavia and mid-Atlantic.

E. Direct movement from Faeroe and Shetland (occasionally Iceland) under "cyclonic variable" conditions in the zone of calm or light variable winds between two low pressure centres in the same system.

F. Direct movement south from the calm central area of a filling low in the Shetland - Faeroe region.

S y s t e m a t i c L i s t

CORMORANT Phalacrocorax carbo. Each autumn some Cormorant passage is seen under any of the local fine-weather patterns listed above, and we have always assumed that it originates in Shetland. In 1955 far more birds were involved in movements through Fair Isle than in other years, and the question of their origin is obscure. The first two appeared earlier than usual, August 27th, and no more were seen until a big passage of ca. 65 occurred on September 10th with westerly wind at Fair Isle from a complex depression between Iceland and Greenland (see "A" above). It is possible that these birds were moving east from the pelagic zone ahead of the frontal weather then sweeping across the Atlantic. There were only 11 birds on 12th but numbers then increased daily to reach 60 on 16th, with persistent westerly wind from southern Green-

land at the beginning of the period (A) succeeded by col conditions (D) from 14th-16th. Thus the possibility of some of the Cormorant passage being derived from south Greenland and Iceland cannot be overlooked.

RED-BREASTED MERGANSER Mergus serrator and LONG-TAILED DUCK Clangula hyemalis. The first Long-tails were two on October 12th, preceded by a TUFTED DUCK A. fuligula on 11th. The period of strong northerly winds in mid-month which brought the Barnacle Geese and Gulls, also brought a number of sea-ducks inshore. Mergansers came in on 14th and increased to 8 on 15th, when the next group of 7 Long-tails also appeared. There was a drake VELVET SCOTER Melanitta fusca but fewer Mergansers and only one Long-tail next day, followed by an increase on 17th to 9 Mergansers, 6 Long-tails and a duck GOLDENEYE Bucephala clangula. The Red-breasted Mergansers almost disappeared on 18th, but there were 23 Long-tails in one group and 6 TEAL Anas crecca, a WIGEON A. penelope and a second Goldeneye. These in particular, and perhaps also the earlier influxes (except the Goldeneyes), may have come from Iceland, influenced by an Atlantic high (B). Following a few blank days 2 Mergansers and 11 Long-tails turned up on October 28th, the latter increasing to 13 next day. This movement again coincided with type (B) weather; farther east, a fresh northerly airstream was blowing from Spitsbergen parallel to the Norwegian coast.

BARNACLE GOOSE Branta leucopsis. Flocks of these geese were seen at the isle on October 16th, a very rare (and very welcome!) event. It is not known how many were concerned: a skein of 19 was seen in the morning, and if small groups watched during the afternoon were additional the total may have been 35. If these birds originated in Spitsbergen (perhaps unlikely, considering that gale-force winds prevailed there on 14th) they could have had a fast down-wind ride to Fair Is. parallel with the coast of Norway in a force 6-7 airstream on the edge of a complex depression with centres over the Baltic and White Seas. North-east Greenland, where anticyclonic calms prevailed on 14th-15th, seems a likelier source, and from here a calm in the Jan Mayen area would have given the birds a

ready access to the same northerly airstream. Only 5 remained on 17th. Two more arrived on 28th following a similar synoptic situation.

PINK-FOOTED GOOSE Anser arvensis brachyrhynchus, and GREY LAG GOOSE Anser anser. A party of 6 Pinkfeet arrived on September 26th in cyclonic weather (A). A skein of 33 came with similar conditions on 30th and next day an adult GREENLAND WHITEFRONT A. albifrons flavirostris was seen by Jerome Stout of Leogh. A few Pinkfeet were also present on this day and the next. A skein of 25 Pinkfeet arrived on October 7th and stayed next day; some Grey Lags were also noted, and it is possible that both species came from Iceland (B). An unusually tame (but probably sick) Pinkfoot remained on 9th, and 4 or 5 plus 28 Grey Lags arrived on 10th (D). During mid-month approach from Iceland was a possibility, cyclonic on 16th (A), anticyclonic on 15th and 17th (B). Barnacle and Grey Lag were the dominant species at this time, there being 33 Grey Lags altogether on 16th after 4 the previous day, then 6 for several days. A small juvenile Pinkfoot shot on 15th was succeeded by 6 on 16th and 18th. No more were seen till 22nd, when 24 "grey geese" arrived in anticyclonic weather. More "grey geese", 9 on 25th and 8 on 27th-28th, appeared with westerly weather (A).

WHOOPER SWAN Cygnus cygnus. The first two were seen on October 1st (see p. 72). The next to arrive were 6 on October 9th, a day of fresh SW. wind and rain with complex low pressure disturbances in the north-east Atlantic. There were 3 on 11th and 7 on 12th with first Iceland and then Faeroe in a col and light west wind in our own area. Single swans were seen on 16th and 18th: there were four cyclonic arrivals on 25th (A) and 2 anticyclonic on 28th (B).

The bird of 18th was a lone youngster, feeding at the Burn of Gaila on a calm morning when there was not enough breeze to give it sufficient lift for "take-off". We caught it without difficulty. Last autumn a lone youngster descended in the Gully, an even worse place

for getting quickly airborne, and it too was caught. The capture of both birds was plainly due to their inexperience, and emphasises the strong survival value of family unity among the swans and geese on migration and in winter quarters.

ICELAND MERLIN Falco columbarius subaesalon. It was a disappointment to see so little Merlin passage in comparison with former years. The first was on time, August 13th (C), and the next was seen on 20th-21st. One on 26th and two next day, probably Icelandic birds, came with the big Wheatear rush (C), and there were 2 on 29th and 3 in a cyclonic airstream (A) on August 31st. Merlins were recorded in ones and twos throughout September, and a Continental F.c. aesalon was trapped on 4th. There were 3 on 14th and 30th (A) and 3 on 18th (D). For a few days from October 1st there were 4 birds (A) and one trapped on 5th was subaesalon. There were again 4 on 17th (A), and otherwise 2 or 3 down to 21st (a subaesalon was trapped on 20th), and two on the last day of the month.

SNIPE Capella gallinago, GOLDEN PLOVER Charadrius apricarius, and other waders. August 22nd-23rd (C) saw the peak of the wader passage, - 12 KNOT Calidris canutus, some 15 DUNLIN Calidris alpina and 16 SANDERLING Crocethia alba. Small parties of Golden Plover, apparently of NW. origin, were noted on September 1st, 10th and 16th, and there were 17 on 19th and 28 with the first arrival of Pink-footed Geese on 26th, these increasing to 40 by 28th. October 1st was the great day for Snipe (see under Whooper Swan), - the only day on which I have seen flocks flying about the isle. There was one lot of 29 above the Haa, another lot of 15, and V.M. THOM saw many more than that together on the Mire of Vatnagard. Some individuals seen at close quarters on this afternoon had characteristics of Capella g. faeroeensis, and also present were some 30 Golden Plovers. There was a further influx of 30-plus Snipe on October 12th (D). Golden Plovers had been in evidence since 6th, but 7 on that day and 16 on 9th were probably drift-migrants from the Skagerrak. A score on 11th with a light westerly wind seem more likely to have

been Icelandic. There was an increase of both species on October 18th (D) but 2 Goldens and 25 Snipe on 20th are more likely to have had a cyclonic journey across Forties. There was a PURPLE SANDPIPER Calidris maritima on October 7th and 2 on 17th and 3 on 28th during the periods of northerly winds described under "Barnacle Goose".

GLAUCOUS GULL Larus hyperboreus and GREATER BLACK-BACKED GULL L. marimus. The 35 Glaucous Gulls which appeared with a large number of Great Black-backs on Buness on October 17th (and disappeared next day) may have come down from Spitsbergen and Jan Mayen Seas in the strong northerly winds blowing at the time on the periphery of active lows over the White Sea and Baltic. About two-thirds of the Glaucous Gulls were adult. We had 3 on 19th with a SE. wind from the Skagerrak, and 2 adults on 28th after similar conditions to the first invasion. Gulls resting on Buness on November 2nd were 280 Great Black-backs and 12 Glaucous, 8 of them adults.

WHITE WAGTAIL Motacilla alba alba. The first flush of autumn passage was from August 1st-5th, with 6 present on 2nd (B). There were no more till 2 appeared on 13th (C). A minor peak between 18th-20th (with 19 on 19th) was almost certainly from the Continent in a S.SE. wind ahead of the warm front of a depression active in the Iceland area. When a high became established over Norway late on 21st more Continental birds arrived (14 on 22nd, 8 on 23rd) in the easterly wind over the North Sea. The major peak of over 50 birds, coinciding with a big Meadow Pipit Anthus pratensis movement, came the day before the big Wheatear "rush", August 27th: as White Wagtails and Meadow Pipits are mainly day-migrants, and Wheatears mainly nocturnal, this precedence was to be expected. No further passage was noted until September 14th (A), and afterwards a few were seen daily to 26th. There were 2 or 3 on October 1st and 3rd, again with an influx of Meadow Pipits.

GREENLAND REDPOLL Carduelis flammea rostrata. The passage of these interesting small birds was very protracted, the first appearing on August 26th-27th (B), and movement going on until December. Many are known to have

been on Foula in the first half of September and it is likely that they were in strength elsewhere in Shetland. There was a big influx at TORY ISLAND, off Co. Donegal, on the night of September 12th (A), according to Light-Keeper O'SULLIVAN.

Some of the records at Fair Is. were certainly due to onward passage from Foula or Shetland, but a few of the influxes appear to have been direct immigration from southern Greenland in the westerly airstreams of depressions centred near Iceland and the Denmark Straits. This is true of the late August birds, those of September 10th, and others near the end of the month. Colonel R. MEINERTZHAGEN, who returned from Greenland at the end of August, wrote that 3 redpolls (rostrata) flew aboard and remained with the ship on 29th-30th at Latitude 60 N. and between Longitudes 23 30 and 12 30 W.

There were 6 at Fair Isle on September 1st and 11 on 2nd, in type (C) weather, so that this was probably onward passage of the earlier movement. A flock of 13 was at the Haa on September 10th (A) and there were 10 at the isle on 19th (D). There were 4 for a few days after 24th (A) and 3 on 29th-30th (A); singletons were seen in early October and 2 arrived on 17th, increasing to 3 next day (B). Four trapped on 24th were of good weight. 8 appeared on 31st (C) and small groups visited JOHN PETERSON'S garden in Lerwick late in the month. No redpolls had been seen for several days when we left on November 11th, but on 12th I saw a flock of 7 near Loch Spiggie. JAMES A. STOUT reports that a flock of 30 birds reached Fair Isle on November 15th (C), and a party of 5 appeared on December 2nd, one remaining into mid-January.

LAPLAND BUNTING Calcarius lapponicus. We saw the first on August 27th, the usual time (B), and 3 were seen next day (C). Four birds on 31st, like the redpolls, were probably direct immigrants from Greenland (A). There were 3 after similar weather on September 10th, and 2 increased to 4 on October 17th-18th (B). Otherwise, single birds were seen on several days down to October 20th.

23. Whooper Swan Migration.

KENNETH WILLIAMSON.

It has been our experience over several years that a number of the passing Whooper Swans Cygnus cygnus are seen flying purposefully to the north in autumn, when one would suppose that they ought to be going in the opposite direction. Northwards, of course, lies Loch Spiggie, a favourite wintering place (see the Venables in Scot. Nat. 62: 142-152, and their recent book, pp. 206-210). This was the case with the first 2 swans we observed in 1955, on the afternoon of October 1st. According to G. STOUT, they approached the isle from the direction of North Ronaldshay; my wife and I saw them flying over the middle of the isle at about 200 ft., calling, and moving on a line which we reckoned would take them to sea past the North Lighthouse. The time was 4 57 p.m. When we reached the North Haven I put through a telephone call to TOM HENDERSON and asked him to look for the swans at the loch. He went out just after 6 and did not have long to wait, for they came in from Fitful Head and settled on the water at 6 9 p.m. There can be no doubt that they were the same two birds as had flown over Fair Isle, as only a single swan had reached Spiggie before this date. The 1 hour 12 minutes taken to cover the 29 miles gives them a speed of about 24 m.p.h., - ignoring any effect of the light south-westerly wind.

The explanation of these northwards movements at Fair Isle is clearly this: the swans drift down-wind from Iceland in a cyclonic airstream, making a landfall somewhere - anywhere - in the north of Britain, and then direct their migration over known territory to the winter quarters at Loch Spiggie. The weather chart for October 1st shows perfect conditions for a down-wind flight from Iceland, a receding depression leaving Iceland with clear, col weather, but maintaining a moderate north-westerly wind in the approach to northern Britain, backing in our own area. There was a great influx of Snipe and a flock of Golden Plovers (see p. 69), also an increase in Teal and Wigeon, at Fair Isle on this day.

24. Autumn and Winter Bird Movements in the South of Shetland (1955-56).

TOM HENDERSON.

The autumn was perhaps not quite so brilliant as the spring (see Bulletin, 3: 21-26); nevertheless, among the species recorded in the area the LEAST SANDPIPER is new to Scotland, and SPOTTED REDSHANK and HARLEQUIN DUCK are the first certain notices for Shetland. The "wreck" of LITTLE AUKS in the early winter produced several examples which have been referred to the Franz Joseph Land race. The Systematic List below is selective, and the notes in parentheses give corresponding records for Fair Isle.

GREAT NORTHERN DIVER Gavia immer. Adult in summer dress, Scousburgh Bay, Oct. 13th-14th. Adult in winter plumage on Loch Spiggie, Nov. 16th, was probably the same as had been in the bay 14th-15th. It is an interesting fact that this appears to be the only fresh-water loch in Shetland frequented by these bird.

BLACK-THROATED DIVER Gavia arctica. A report of a bird of this species in Scousburgh Bay on Sept. 4th I accepted with caution, as in most cases there proves to be confusion with our native "Rain Goose". However, I satisfied myself with the aid of a telescope that this was indubitably a Black-throat in winter plumage, - too shapely and slender for a Great Northern, and the quite slender beak showing no traces of the Red-throat's very distinctive upwards tilt. Still in the bay on 7th.

RED-NECKED GREBE Podiceps griseigena. One in the Bay on October 11th.

FULMAR Fulmarus glacialis. For some reason Fulmars on the west coast never left the cliffs this autumn at all, save for a couple of days at the most, and that at a time of strong onshore winds. As late as Oct. 14th, when they should normally have been at sea, L.S.V.V. estimated 1,500 along the cliff-face from Bergalie to the Niv, at the north-west corner of Fitful Head.

(Similarly, at Fair Isle absence was confined to a few days only in late October, 25th-27th, numbers being at the cliffs following a large-scale return on 12th, after a period when fewer were present but the cliffs never entirely deserted. - Ed.).

MALLARD Anas platyrhynchos. Very numerous this year. TEAL A. crecca. Noticeable increase last week of Sept. with 20 on Hillwell on 25th. Very few in Oct.

WIGEON A. penelope. Numerous from Sept. until a noticeable falling-off after the first snow in December.

PINTAIL A. acuta. ♂ on Spiggie, Oct. 10th; ♂ & 2 ♀♀, Spiggie, Oct. 11th-22nd; 2 ♀♀, Spiggie, Nov. 13th, one remaining 14th.

SCAUP Aythya marila. Unusually scarce, ♂ and 2♀♀ on October 21st.

TUFTED DUCK A. fuligula. ♂♀, Spiggie, Oct. 11th, and big increase in numbers about 19th.

POCHARD A. ferina. Usual small wintering flock of about 35 on Lochs Spiggie and Brow from October.

GOLDEN-EYE Bucephala clangula. 20-25 on Spiggie by Oct. 11th, and big increase about 19th. Wintering flock of 75-80 until the first freeze-up, diminishing.

LONG-TAILED DUCK Clangula hyemalis. Scarce on the west side all winter, probably because of bitterly cold weather and onshore winds, but numerous on the east side of Dunrossness, especially about Grutness.

HARLEQUIN DUCK Histrionicus histrionicus. When at the Pool of Virkie on Oct. 16th Miss I.M.N. RYAN and Dr. MAEVE RUSK noted a small brown duck diving near the shore. Presently it flew on to the sand, and when they approached it squatted and allowed itself to be picked up. It proved to be a ♀ Harlequin, in good condition but obviously very tired. Miss Ryan and Dr. Rusk fetched it back for all of us to examine, after which it was released on Loch Spiggie, where it was last seen on the morning of 18th. A note concerning this bird, the first certain Shetland record, appeared in British Birds, 49:

36-37, together with an excellent photograph (plate 4). The VENABLES, "Birds and Mammals of Shetland," p. 229, "square-bracket" a supposed ♂ at Whalsay in March 1893. The present bird occurred during a period of strong and cold northerly winds (see p. 67).

SHELDUCK Tadorna tadorna. 3 at Boddam, Sept. 29th and one on Oct. 5th, extremely late dates. On Feb. 1st 2 were at the Pool of Virkie, 4 on 2nd and 14 on 19th.

WHITE-FRONTED GOOSE Anser albifrons. One on Oct. 7th and 2 on 21st.

GREY LAG GOOSE A. anser. 9 on Oct. 4th-5th and 20 next day; small parties on 11th (5), 13th (17), 24th (9), 26th (14), 29th (15), 31st (23), Nov. 3rd (5), 8th (21) and 18th (10). After this we had 8 Grey Lags wintering, mainly on the re-seeded lower slopes of Fitful Head, until Feb. 17th, when another 2 joined making 10 in all to date (26th). This is only the second occasion in about 40 years that Grey Lags have wintered with us.

PINK-FOOTED GOOSE Anser arvensis brachyrhynchus. One on Sept. 26th, 4 on 29th and 2 on October 2nd. (See pp. 67-68 for goose movements at Fair Isle).

BRENT GOOSE Branta b. bernicla. Two of the dark-breasted form appeared on the sea off Scatness on Sept. 1st and were on the Pool of Virkie on 3rd. (Two of the pale-bellied race Branta b. hrota were in South Harbour at Fair Isle from 8th to 11th inclusive. - Ed.).

WHOOPER SWAN Cygnus cygnus. The first arrived on Sept. 27th and on Oct. 1st 2 more came in which had passed over Fair Isle heading north (see p. 72). Numbers gradually increased until the herd numbered 75 on Oct. 30th. There was little further increase until November 12th, when more began to come in (82), rising to 92 on 15th, 94 on 20th and so on, until by Dec. 18th we had reached almost a record total of 129 birds. They stuck out the first freeze-up, but a sharp thaw raised the level of the loch on 24th, and by 26th the number had fallen to 54. About 40 are still in the area (Feb. 26th).

BEWICK'S SWAN Cygnus columbianus bewicki. One appeared at Loch Spiggie on Oct. 10th and remained until the big exodus of Whoopers on Dec. 26th. The last to be identified here was in 1926.

GREY PLOVER Charadrius squatarola. Two on Sept. 29th, 2 on Oct. 13th and one on 16th, all at Virkie.

GREAT SNIPE Capella media. A specimen brought to me on Oct. 10th was shot at the Black Holes, Clumley. A second, shot by the same man near Scatness, was brought to me on 28th. He reports flushing a third, which he did not secure, in Cloddiesdale on Nov. 3rd.

WOODCOCK Scolopax rusticola. Very scarce about the time of the normal flights in late Oct. and early Nov., but a slight influx occurred in December. A few have wintered and one was noted on Feb. 17th.

BAR-TAILED GODWIT Limosa lapponica. 3 on August 28th. Normally from 6 to 8 winter at Virkie, but there has been one only this year.

SPOTTED REDSHANK Tringa erythropus. Shooting at Clumley on Sept. 16th Capt. DUNCAN STEWART and two friends had a good view of an unusual wader which "resembled a Redshank in size, shape and flight; legs and beak similar in colour; but it was sooty-black on the underparts and somewhat lighter and more spotted on back and wings; there was no white on the secondaries in flight." Shown a plate of a Spotted Redshank in summer plumage, Capt. Stewart said unhesitatingly that this was the bird they had seen. It would appear to be the first record for Shetland proper.

GREENSHANK T. nebularia. One on Aug. 18th and 7 on 27th; 3 on Sept. 23rd. (2 at Fair Isle, Aug. 20th & 27th, and singly Sept. 7th, 9th and 16th. - Ed.).

KNOT Calidris canutus. 10 on Aug. 13th, one on Oct. 16th. (Peaks at Fair Isle Aug. 13th (11) and Sept. 23rd (11). - Ed.).

LEAST SANDPIPER (American Stint) C. minutilla. Mr. SAM BRUCE, veteran Shetland ornithologist, obtained a specimen at the Pool of Virkie on Aug. 14th, the first Scottish record. The specimen is now in the Royal Scottish Museum study-collection.

RUFF Philomachus pugnax. Ruff and Reeve near Sumburgh, Sept. 11th. (2 at Fair Isle on 13th and 3 on 19th).

GULLS. One Larus hyperboreus at Spiggie on Oct. 16th and 2 at the Dale on Nov. 2nd. An immature L. glaucoides at the Pool of Virkie on October 23rd.

LITTLE AUK Plautus alle. Very numerous all winter, suffering heavy mortality. The first noted by me was a dead one on Scousburgh sands on Nov. 30th. Since that date they have been turning up all over the place, some inland and apparently quite fit, but mostly weather-beaten and many dead. Six were picked up one morning on the runways of Sumburgh Aerodrome. Mr. SAM BRUCE informs me that several he has sent to the Bolton Museum have been referred by Mr. A. HAZELWOOD to Plautus a. polaris, a large race not hitherto recorded in Britain. It was described by Surgeon Rear-Adm. J.H. STENHOUSE in 1930 from material collected in Franz Joseph Land (see Scot. Nat., 1930, pp. 47-49).

TURTLE DOVE Streptopelia turtur. One at Spiggie on Sept. 1st and 2 there on 3rd. (Singly at Fair Isle, Aug. 28th and Oct. 4th).

WRYNECK Jynx torquilla. One was seen under excellent conditions at Royalhoull on the late date of Nov. 1st.

FIELDFARE Turdus pilaris. A few, Oct. 4th (9), with an increase next day. Very few wintering.

REDWING T. musicus. First flocks on Oct. 5th, with increased numbers next day. (Big rush at Fair Isle, 6th).

WHEATEAR Oe. oenanthe. Last noted on October 10th.

WHINCHAT Saxicola rubetra. One at Virkie, Aug. 20th and one at Vaumer, Oct. 5th.

REDSTART Ph. phoenicurus. Two in the district, Sept. 12th-13th, and again two on Oct. 11th-12th.

GARDEN WARBLER Sylvia borin. One on Aug. 27th and about 6 in Sumburgh House garden next day.

LESSER WHITETHROAT S. curruca. Two on Oct. 2nd and one on 14th.

CHIFFCHAFF Phylloscopus collybita. Singly on Oct. 4th, 14th and 23rd; 2 at Virkie on Nov. 5th.

YELLOW-BROWED WARBLER Ph. inornatus. L.S.V. and U.M. VENABLES and Miss I.M.N. RYAN saw one in the kale-yards at Spiggie on October 11th.

RED-BREASTED FLYCATCHER Muscicapa parva. Miss I. M.N. RYAN, H.E. AXELL and I.J. FERGUSON-LEES watched a bird in Sumburgh House gardens on Oct. 4th-5th. One was seen at Lerwick Observatory by Mr. IVOR McLEAN on Oct. 24th. There was a ♂ PIED FLYCATCHER M. hypoleuca at Boddam on September 30th.

WHITE WAGTAIL Motacilla a. alba. One on Aug. 14th; 2 at the Aerodrome, 25th; 15 at Virkie, Sept. 1st.

BLUE-HEADED WAGTAIL Motacilla f. flava. There was one at St. Ninian's Isle on Sept. 6th; three others reported on the same day could not be checked.

WAXWING Bombycilla garrulus. One remained around the houses of Hestinsgott for 2 or 3 days about Nov. 11th.

(LESSER GREY SHRIKE Lanius minor. Mr. WM. HORNE saw a shrike on Oct. 24th near the hangars at Sumburgh and thought it was this species: it was not possible to get a really satisfactory view but the bird seemed small for a Great Grey Shrike). RED-BACKED SHRIKE L. collurio at Spiggie on Sept. 12th.

REDPOLLS Carduelis flammea (probably rostrata). One at Hillwell, Sept. 29th; 7 near Loch Spiggie, Nov. 12th; 7 at Vaadil, Nov. 18th.

BULLFINCH Pyrrhula p. pyrrhula. Some boys took one to Mr. WM. HORNE on Nov. 7th: it was a magnificent ♂. A ♂ was seen by Mrs. J.N. HAMILTON at Levenwick in late Oct. and one or two were reported from Lerwick at the same period.

CHAFFINCH Fringilla coelebs. 7 at Royalhoull on October 7th and 4 on 13th.

LITTLE BUNTING Emberiza pusilla. One elusive bird was seen by Miss I.M.N. RYAN and myself among the bushes in Royalhoull garden on October 7th.

SNOW BUNTING Plectrophenax nivalis. Numerous all winter in flocks of up to 200 birds.

25. Autumn Migration (1955) at Great Saltee.

R.F. RUTTLEDGE and JOHN WEAVING.

The Observatory was manned from August 20th to Sept. 17th and from September 23rd to November 16th, all dates inclusive.

M i g r a t i o n

There were two periods of particularly heavy movement involving a good variety of species: August 22nd to 24th, during which the wind was easterly, forces 1-3, and October 10th-11th when the wind was south, forces 4-3. In the latter period, unfortunately, the isle was inadequately manned and those there were unable to cope with the weight and variety of migrants. It is feared that several interesting species may have gone unidentified amongst the horde of small birds lurking in the thick cover.

During this rush the following were concerned in big numbers: Skylark, Swallow, Meadow Pipit, Chaffinch, and rather fewer Lapwings, Redwings, Chiffchaffs, alba wagtails Starlings and Linnets. Also recorded were Corncrake, Black and Common Redstarts, Song Thrush, Garden Warbler, and Red-breasted Flycatcher.

Notable occurrences during the autumn were ICTERINE WARBLERS, RED-BREASTED FLYCATCHERS and a WOODCHAT SHRIKE.

PIED FLYCATCHERS were particularly numerous and exceeded any passage so far experienced, and TREE PIPITS were again of particular interest. BLACKBIRDS reached a new all-time "high" on November 1st.

S y s t e m a t i c L i s t

HARRIER Circus sp. ♀♀ or immature birds singly on October 15th, 21st to 24th, 28th, 30th and November 9th.

MERLIN Falco columbarius. One or 2 on most days from Sept. 25th to Nov. 15th; 3 on Oct. 7th and 25th.

LAPWING Vanellus vanellus. In numbers from one to 20 on all except four days; Aug. 28th (40), Nov. 1st (35), Nov. 8th (38) and 14th (35).

GOLDEN PLOVER Charadrius apricarius. Aug. 25th (9), Oct. 2nd (45), 3rd (30) and singly on Oct. 7th and 30th.

TURNSTONE Arenaria interpres. Peak period from Aug. 20th (200) to 22nd, the greatest number so far recorded.

SNIPE Capella gallinago. One to 6 on many days in October and November. Peak Oct. 30th (17) - 31st (20 +).

WHIMBREL Numenius phaeopus. Almost daily from Aug. 20th to Oct. 16th in numbers up to 6; but on Aug. 23rd and 29th 10 each day, and a dozen on Sept. 14th.

GREAT SKUA Catharacta skua. One on August 21st.

LESSER BLACK-BACKED GULL Larus fuscus. Passage of L.f. graellsii from Aug. 20th (1) to Sept. 2nd, almost daily. Maxima on Aug. 21st (10-15) and Sept. 1st (12). Single birds irregularly from Sept. 9th to Nov. 14th.

WOOD PIGEON Columba palumbus. Singly on Aug. 24th and Nov. 2nd. On Oct. 30th a flock of 78 came from south'ard and passed flying north towards the mainland.

TURTLE DOVE Streptopelia turtur. One, Oct. 1st-2nd.

CUCKOO Cuculus canorus. Singly, Aug. 28th, 31st and September 2nd.

SKYLARK Alauda arvensis. First appreciable movement was on Oct. 10th and on 11th 600 were recorded. Afterwards movement was on a much smaller scale and on most days seldom exceeded 20 birds. On Nov. 9th (45) and 12th (35).

SWALLOW Hirundo rustica. Maximum movement took place during five days at the end of September; other days of heavy migration were Sept. 7th (100), October 10th (100) and 11th (300).

HOUSE MARTIN Delichon urbica. Maximum movement was on September 28th (26).

SAND MARTIN Riparia riparia. Recorded only on Aug. 24th-25th and September 27th.

MISTLE THRUSH Turdus viscivorus. Singly on October 3rd, November 9th and 15th, and 3 on 12th.

FIELDFARE Turdus pilaris. Noted from Oct. 9th and daily in November. Heaviest movement Nov. 13th (55) and 15th (45).

SONG THRUSH T. ericetorum. On most days from Oct. 7th to Nov. 16th but seldom more than 10. Peak date was Oct. 24th (20). All trapped were of the British race.

REDWING T. musicus. Thin passage from Oct. 20th, became more intense in November. Most on Nov. 9th (25), 13th (70) and 16th (25).

RING OUSEL T. torquatus. Singly on six days from October 3rd to 10th.

BLACKBIRD T. merula. First increase was noted on Aug. 28th; others on Oct. 7th, 18th, 24th and 29th. On Nov. 1st numbers suddenly rose to 400, then as suddenly decreased until another strong movement took place on 11th and again on 16th.

WHEATEAR Oe. oenanthe. 15 to 30 birds recorded daily from Aug. 20th to 26th, thereafter irregularly to Oct. 24th.

STONECHAT Saxicola torquata. The usual thin movement commenced on Sept. 25th.

WHINCHAT S. rubetra. The usual thin passage from August 20th; singly on September 26th and 30th.

REDSTART Ph. phoenicurus. Singly on August 27th, September 8th, 9th and 16th, and October 10th and 12th.

BLACK REDSTART Ph. ochruros. Singly, October 10th, November 1st, 2nd and 4th.

ROBIN Erithacus rubecula. Daily from Sept. 24th to Nov. 16th in numbers up to 6. Nov. birds were probably winter residents. Those trapped were E. r. melophilus.

SEDGE WARBLER Acrocephalus schoenobaenus. Movement from Aug. 22nd to Sept. 2nd in numbers up to 15. A probable REED WARBLER A. scirpaceus on August 22nd.

ICTERINE WARBLER Hippolais icterina. 2 trapped on August 24th and full laboratory descriptions recorded.

BLACKCAP Sylvia atricapilla. Single ♂♂, Oct. 22nd, Nov. 7th and 2 on Nov. 1st. Single ♀♀ on Oct. 13th and November 9th.

WHITETHROAT S. communis. Up to 20 daily from Aug. 20th to Sept. 7th; stragglers Sept. 10th, 12th, 16th and October 11th.

GARDEN WARBLER S. borin. Singly Oct. 10th and 29th.

WILLOW WARBLER Phylloscopus trochilus. Daily from Aug. 20th to Sept. 3rd; stragglers to 10th. As was the case in spring, numbers were far below those of other years.

CHIFFCHAFF Ph. collybita. Passage was very light and irregular and recorded only on 10 days between Aug. 27th and Oct. 11th, with a maximum that day (5). Four of these were thought to be "Northern" birds, as also were birds on ten occasions between 12th and 29th. Two undoubted "Northern" birds were present on November 16th.

SPOTTED FLYCATCHER Muscicapa striata. Daily from Aug. 20th to 30th, most on 27th (30). Three on Sept. 7th, one on October 11th and another on 12th.

PIED FLYCATCHER M. hypoleuca. Unusually heavy passage from Aug. 24th (5 or more) to 27th (10); also 25th (7) and 26th (5), 28th (5) and 29th (3). One or two on seven days between August 20th and September 16th.

RED-BREASTED FLYCATCHER M. parva. One trapped on Oct. 8th was present next day and a different bird was seen 11th.

MEADOW PIPIT Anthus pratensis. First migrants, Sept. 4th (50-100), but regular migration only commenced on 24th and continued till Oct. 23rd, then became negligible. Days of peak numbers were Sept. 26th (1,000), 27th (1,200), with lesser peaks on Oct. 3rd (200) and 12th (300). On September 26th movement was at its maximum intensity from 0730 to 0830 hours. On 27th it started at 0625 and had ceased by 0835 hours, being heaviest from 0645 to 0815 hours. On 28th the first arrivals were at 0625 and there was no peak hour.

TREE PIPIT Anthus trivialis. Two or more on Aug. 24th and 25th; two on 27th. Identified by call-notes.

ALBA WAGTAILS. Passage of the usual pattern between August 22nd and October 29th.

GREY WAGTAIL Motacilla cinerea. Singly, Sept. 10th and 27th.

YELLOW WAGTAIL M. flava. An immature bird remained in one field from September 25th to 30th.

WOODCHAT Lanius senator. Bird of the year, Aug. 24th.

STARLING Sturnus vulgaris. First noticeable movement Oct. 22nd (50). Usual heavy movement in November, with maxima on 1st (2,500), 5th (1,000), 12th (2,000), 13th (7,000) and 14th (1,500).

GREENFINCH Chloris chloris. Thin movement in Oct. and Nov. when on 1st there were 40 and on 12th 20, the best numbers so far recorded at the isle.

GOLDFINCH Carduelis carduelis. Irregularly in small numbers from Oct. 16th to Nov. 16th; maxima Nov. 1st (50) and 8th (20).

SISKIN C. spinus. About 4 on November 3rd.

LINNET C. cannabina. Almost daily from Sept. 25th to Nov. 16th in numbers often up to 50. Most on Oct. 11th (200), 12th (250) and 24th (90).

CHAFFINCH Fringilla coelebs. Movement from Oct. 10th (200), next day 500, continuing to Nov. 16th. Days of maximum numbers were Oct. 25th (300), Nov. 1st (300), 7th (750) and 12th (500). There was prolonged heavy movement from Nov. 1st to 9th with never less than 250 on any day. Much attention was paid to races involved and all trapped ♂♂ were carefully compared against series of skins. 57 ♂♂ examined between Oct. 19th and Nov. 15th were clearly referable to hortensis of middle Europe; of these, 4 were caught in Oct., the rest in Nov. 3 others appeared to be intermediates, coelebs-hortensis. There were periods when ♂♂ preponderated, others when ♀♀did so. Thus there was a run of ♂♂ only on the afternoon of Nov. 1st, then a gap with ♀♀ exclusively till 3rd; from then to Nov. 7th nearly all trapped were ♂♂ and this sex again preponderated on 13th.

BRAMBLING F. montifringilla. Movement almost daily between Oct. 24th and Nov. 16th, heaviest from Nov. 2nd to 4th (12, 20, 12 respectively).

SNOW BUNTING Plectrophenax nivalis. ♂ on Nov. 3rd.

T r a p p i n g

The autumn total amounted to 724 (36 species), with BLACKBIRDS heading the list (206) and next CHAFFINCH (132). WILLOW WARBLERS and MEADOW PIPITS exceeded 50 each and we had 26 PIED FLYCATCHERS.

The year's total was 1,314 (56 species), very few being other than passage birds. BLACKBIRD was top (227), followed by WILLOW WARBLER (200), WHITETHROAT (146), CHAFFINCH (141).

Recoveries

Recoveries abroad included a SWALLOW ringed on May 5th 1955 and found dead on a fishing-vessel off Ile de Croix, Morbihan, FRANCE, on May 10th, some 350 miles SE.

A FIELDFARE ringed on November 11th 1954 was recovered at Brattvag, More, NORWAY, on May 17th 1955.

A CHIFFCHAFF ringed on August 28th 1955 was reported from near Satao, PORTUGAL, on October 14th.

A CHAFFINCH ringed as a nestling in June 1955 near Oslo in south NORWAY was trapped on November 1st, and on examination with skins was assigned to Fringilla c. hortensis.

Several species were recovered in IRELAND. A ROBIN ringed on August 22nd 1952 was caught in Co. Kerry in early January 1955, and was still there on May 2nd.

It is puzzling that the returns from BLACKBIRDS have been so few. This is normally a very recoverable species, yet of a total of 569 so far ringed at Saltee only one has been reported, - a 1st-winter ♀ of October 30th 1951, found in south NORWAY in "spring" of the following year.

Of the many retraps at the Observatory, the following are of interest. HEDGE SPARROW, May 7th 1952 and March 25th 1955; HEDGE SPARROW, August 5th 1952 and May 11th, 27th and October 11th 1955; ♂ WHITETHROAT, September 8th 1954 and September 3rd 1955. A WILLOW WARBLER ringed on August 27th 1955 was still present on the island on September 10th.

Acknowledgments

We are again grateful to Dr. James M. Harrison for the loan of a fine series of skins of the Chaffinch, and for his help and advice in many things we have greatly to thank Mr. K. Williamson.

26. Migration at Blaavandshuk, Denmark, in Autumn 1955.

IAN NISBET.

In Bulletin, 2: 301-303, DAVID JENKINS described briefly an expedition to watch migration at Blaavandshuk on the west coast of Jutland in September 1954, and a fuller discussion of the results has since appeared in Dansk Orn. Foren. Tidss., 49: 149-181. These articles gave some idea of the interest of the results obtained, and of the great potentialities of Blaavandshuk as a site for Bird Observatory work. The autumn weather in 1954 was somewhat abnormal, and confirmation or extension of some of the results seemed necessary, - so in 1955, five English ornithologists visited Blaavandshuk again, at a later period, between September 17th and October 10th.

As in 1954 the migration was assessed by standard Bird Observatory methods, including the counting of day-migrants for a sample two-hour period each morning, and the taking of a census of night-migrants each day in an isolated area of cover near the point. Unfortunately most of the passerine migration was from 10 to 14 days later than in 1954, so that we actually saw fewer day-migrants in 1955, although the period of observation was 8 days later. (The grand totals for the two years were respectively 67,000 and 48,000). As in the early part of the watch in 1954 CHAFFINCHES Fringilla coelebs and MEADOW PIPITS Anthus pratensis formed the majority (82%) of the birds counted.

The 1955 weather was much less stormy, and we did not again observe a clear correlation between migration and falling wind-strength, but found falling temperature a much more conspicuous stimulating factor. During the unusually warm weather in early October, in fact, the migration steadily tailed off, and on October 8th we had a fine, clear, calm day with only a small trickle of movement!

Other differences were apparent in the directions taken by the migrants, which are strongly influenced by the two lines of the coast which meet at Blaavandshuk almost at a right-angle, and by the large area of barren heath which lies immediately to the north-east. The pattern of movement past the observation posts was much more complex than in 1954, the birds being more strongly influenced by the guiding-lines and less inclined to cross the sea, so that the spectacular movement out to sea on a broad front which was seen twice in 1954 did not materialise, despite several days of similar weather. I believe that these differences indicate that the birds were flying with a smaller internal motivation ("Fliegemut"), possibly connected with the later breeding season and milder autumn, with rather different operative stimuli to migrate. The subject is too complex, however, to discuss in detail with such limited data.

On analysis, the influxes of night-migrants fell into a very simple pattern. The typical big migrations seemed to be due to direct crossing of the Skagerrak from Norway, and usually occurred as a depression passed away to the north-east, in improving weather with a favourable north-west wind. In addition, overland drift from Sweden or northern Germany may take place under suitable conditions, and the arrivals of September 23rd, when we recorded two SCARLET GROSBEAKS Carpodacus erythrinus, two BARRED WARBLERS Sylvia nisoria, a RED-BREASTED FLYCATCHER Muscicapa parva and RED-THROATED and TAWNY PIPITS Anthus cervinus and A. campestris, were a gratifying fulfilment of the promise shown by Blaavandshuk on our first evening in 1954.

Other eastern birds, such as YELLOW-BROWED WARBLER Phylloscopus inornatus on October 8th and a SIBERIAN STONE-CHAT Saxicola torquata maura on September 28th, arrived with influxes of Norwegian birds, probably on re-directed passage after earlier drift into western Norway. The frequency of occurrences of eastern birds at Blaavandshuk (in itself a faunistic discovery of considerable interest) after conditions suitable for overland drift encourages the opinion that such drift is a regular feature of migration through south Scandinavia. I believe, however, that the records from these

west-coast stations may considerably exaggerate the numerical importance of drift in this area by yielding greater concentration of migration from the east than from north or west. For example, the largest peak of night-migrants at Utsira, off west Norway, in 1954, was due to a drift-movement from the east, yet when the same eastern species arrived in Denmark on redirected passage the next day, they were outnumbered 20 to 1 by the Norwegian migrants with which they had crossed the Skagerrak. Further direct evidence on this point is badly needed.

In addition to the passerines, we also made our regular sample counts of sea- and shore-birds. Some of the more interesting of the 1954 observations, such as the occurrence of large numbers of GANNETS Sula bassana and small numbers of GREAT NORTHERN DIVERS Gavia immer, shearwaters, skuas and other marine birds, were repeated in 1955, and we also saw interesting migration of certain ducks and geese, terns, gulls and some waders. In October the southward migration of divers attracted most attention and we estimated that over 1,000, mostly BLACK-THROATED Gavia arctica, passed during the peak day, October 7th.

The hawk migration was heavier than in 1954, and involved no fewer than 13 species. The occurrence of large numbers seemed to be dependent simply on south-east winds which drifted the migrating birds laterally towards the coast. From September 27th onwards we also witnessed part of the widespread "irruption" of JAYS Garrulus glandarius.

From this brief summary it will be seen that Blaavandshuk is a very profitable place to study migration. I believe that any future work should fall under three headings: (1) study of passerine migration in conjunction with other key stations; (2) comparison with simultaneous observations at other coastal and inland places in order to find out the nature of the concentration at the coast; and (3) further work on the migration of coastal birds, a much neglected study.

27. Spring and Autumn Migration (1955) at Portland Bill, Dorset.

JOHN S. ASH.

During its first year as an established Bird Observatory Portland had two temporary Heligoland Traps in operation and 968 birds of 43 species were ringed. The notes in the Systematic List below are in a very abbreviated form and considerable selection has had to be exercised. The phrase "left Bill" refers to birds seen flying out over the sea from the southernmost point. Enquiries regarding accommodation at the Bird Observatory should be made to A.J. Bull, The Gallop, Bryanston, Blandford, Dorset.

S y s t e m a t i c L i s t

DIVERS. More frequent than usual, especially during April and the first half of May.

SHEARWATERS. 11 Manx on 3 days between May 8th-21st and 6 on 4 days in Sept. There were 67 Balearic Procellaria p. mauretanicus on 10 days in Sept. and 15 on 4 days in Oct. mostly flying west. At least two pairs of FULMARS bred.

RAPTORS. Many fewer Sparrow-hawks than in 1954. Four Kestrels left the Bill on Sept. 7th, and single Merlins were seen leaving in mid-October.

WADERS. A Dotterel on Oct. 17th and Green Sandpipers on Oct. 11th and 16th. Common Sandpipers appeared between April 22nd-25th. Single Greenshanks on Aug. 24th and Sept. 4th. A Grey Phalarope on Sept. 18th and Stone Curlews on March 31st (2) and April 2nd. A 1st-winter BUFF-BREASTED SANDPIPER Tryngites subruficollis, present from Sept. 28th-Oct. 11th, was ringed on 9th and weighed 62 gm.

SKUAS. Two Bonxies on Sept. 17th, singly on 22nd and 24th. Arctics singly on 5 days in Sept., 15 on 5 days in October down to 20th, mostly flying west.

GULLS. British Lesser Blackbacks (L. f. graellsii) outnumbered Scandinavian (L.f. fuscus) by 12:1 in March & April and occurred in the ratio 24:28 in Sept. & Oct. In spring, southerly movements of Common Gulls suggested a cross-Channel migration: 32 left S.SW. in 125 mins. on April 2nd and 82 in 2¼ hrs. on 3rd. An immature Little Gull flew east on September 11th.

TERNS. The only large movement of Common / Arctic was of 254 flying west in 50 mins. on Sept. 11th: extreme dates were April 22nd (3) and Oct. 15th. Sandwich maxima were 6 on April 22nd (first seen 2nd) and 49 on Sept. 4th. About 12 Little and 2 Black Terns flew west on Sept. 13th.

DOVES. Occasional Stockdoves were seen flying out to sea and returning, April 22nd-23rd, and in mid-October. On Nov. 13th 93 were recorded in 80 mins. from 0715 hrs., some flying far out and returning. Wood Pigeons were frequent in autumn with a peak on Sept. 10th. Turtle Doves April 28th-29th (3) and from Aug. 24th - Oct. 1st.

HOOPOE. Singly, April 2nd and 26th; Sept. 21st & Sept. 25th - Oct. 2nd.

SHORT-EARED OWL. One flew in from the south on March 30th. More were seen in late Oct. and mid-Nov.

LARKS. One Woodlark flying north Oct. 14th; 2 left south on 16th. Main Skylark night-migration peaks were Oct. 16th (190), 29th (100) and Nov. 12th (250).

SWALLOW. First on April 3rd (6); spring peaks Apr. 20th-21st (100) and May 22nd (200). Occasionally seen arriving from over the sea at dawn, but 10 left the Bill in southerly directions in spring. Autumn peaks, Sept. 17th (400), 20th (400), 22nd (800), 23rd (500), Oct. 9th (400). In 1955 there was a westerly bias in departures from the Bill as compared with an easterly one in 1954.

MARTINS. House Martin peaks were May 22nd (20 +), Sept. 20th (150), 24th (300) and Oct. 1st (150)-2nd (75). 139 left the bill on Sept. 24th in 105 mins. from 0600 hrs. Sand Martin peaks were Sept. 20th (40) and 24th (74).

CROWS. On March 20th 8 Rooks and 2 Jackdaws left the Bill SW. and returned; similar behaviour, involving also Carrion Crows, was seen on other days. One Hoodie was seen flying W.SW. on April 23rd.

TITS. No big influxes as in 1954 (Bulletin, 2: 281).

THRUSHES. In Nov. all Fieldfares, usually accompanied by Redwings (most on 12th-13th) were apparently coming in from the sea and flying north. There were c a. 1,000 Redwings on March 13th, with ca. 50 Song Thrushes. Main Blackbird and Song Thrush movements in autumn were Oct. 13th 23rd and Nov. 12th. Trapped Song Thrushes weighed 64.0 gm. (March 19th), 72.2 gm. (Oct. 3rd), 79.8 gm. (Oct. 8th) and 92.4 gm. (Nov. 20th).

WHEATEAR. First on March 17th, ca. 20 on 29th, and further influxes on April 27th and May 22nd. 3 Greenland birds were trapped on April 30th. Autumn peaks were Aug. 14th (75), 15th (50), 21st (100) and 28th (60). The last were 4 on October 24th.

WHINCHAT. First, April 22nd; peaks, April 26th (9) and Aug. 23rd-24th. REDSTARTS on March 29th, April 1st, and 6 on April 24th; single birds only in autumn. BLACK REDSTARTS between Oct. 10th-22nd and at least 3 on Nov. 11th. NIGHTINGALES were trapped on April 12th and Sept. 10th. Most ROBINS were on Oct. 11th (5) and 23rd-24th.

WARBLERS. GRASSHOPPER peaks April 26th and 29th. SEDGE April 26th (30), 28th (20) and 29th (300), with an autumn peak on Aug. 21st (15) and the last on Oct. 1st. First WILLOW WARBLERS on March 31st (2), then peaks on April 12th and 21st, 26th and 29th (100); autumn peaks, Aug. 20th and Sept. 12th. First CHIFFCHAFFS, March 29th.

WHITETHROATS came in from April 19th to 21st (15), and peaks fell on 26th (200) and 28th-29th, over 1,000 on the last day, when every scrap of cover was full of them and 155 were trapped before the supply of rings gave out. Most in autumn on Aug. 21st (30), Sept. 6th-7th and 12th.

RARE WARBLERS. WOOD on April 18th; SIBERIAN CHIFF-CHAFF Ph. c. tristis trapped Oct. 14th; BONELLI'S WARBLER Ph. bonelli trapped on Aug. 29th, 7.4 gm.; 1st-winter BARRED Sylvia nisoria trapped on Sept. 29th and seen Oct. 3rd-4th, and an adult seen on Oct. 9th; an ORPHEAN S. hortensis was trapped on Sept. 20th, 21.2 gm.; and an AQUATIC Acrocephalus paludicola was present from Oct. 11-13th. A Hippolais warbler was seen on Sept. 12th.

FLYCATCHERS. A 1st-winter ♂ RED-BREASTED, Oct. 23rd, weighed 10.9 gm. PIED were first noted April 26th-27th; there were 6 on Sept. 1st. SPOTTED were few, May 7th (2) and 21st (4). FIRECRESTS singly March 31st-April 3rd and 2 on Nov. 5th and 12th-13th.

PIPITS. Many MEADOWS apparently arrived from SE. on March 31st and autumn peaks were Sept. 24th (700), 26th (600), Oct. 9th (750). TREE PIPITS from April 12th and 18th, in autumn 13 on Sept. 4th.

WAGTAILS. 5 alba flew north singly, March 19th, and there were 3 on 20th. Autumn peak of 300 on Oct. 9th. GREY WAGTAILS seen leaving the Bill included 6 in 85 mins. from 0605 hrs. on Sept. 17th. First flava on April 15th and peak on 29th (7); autumn peaks on Aug. 21st (100), 29th (200), Sept. 3rd (165)-4th (300) and 6th (105)-7th (130). ♂ BLUE-HEADED WAGTAIL on Aug. 20th.

FINCHES. 17 GREENFINCHES left in one hour from 0640 hrs. on Oct. 24th. Small numbers of GOLDFINCHES in spring, with 36 on May 1st, many leaving the Bill between west and SW. Most were seen in autumn on Oct. 13th (289), when 184 left in 100 mins. from 0630 hrs. LINNET spring peak was April 26th (80) and autumn maxima were Oct. 9th (2450) and 13th (3100), most leaving between south and SW. REDPOLLS (4) left the Bill S.SW. on Oct 14th; most BRAMBLINGS were Oct. 23rd-24th.

CHAFFINCH. Small movement on March 29th. In autumn from Oct. 2nd, with strong movements on 10th (65), 23rd (200)-24th (8000). On this day birds were just visible at a great height against high cloud, all coming in from the sea and flying north. During a watch from 1030-1100 hrs. 1171 birds were counted, mostly only just visible on

a narrow front, so the day's total is probably a very conservative one. The weather-maps suggest that the birds may have been on redetermined passage to Britain from the French coast, having been drifted down from the North Sea when attempting to cross farther NE.

BUNTINGS. YELLOW-HAMMERS on March 29th and May 14th-15th. A probable ORTOLAN on Oct. 27th and ♂ RED-HEADED BUNTING at the Bill at 0705 hrs. on Oct. 11th. The meteorological situation during the previous 48 hrs. was very much in favour of its being a genuine drift-migrant from SE. Europe. SNOW BUNTING (rare in Dorset) from October 20th-29th.

SPARROWS. A hybrid House X Tree Sparrow was caught on Sept. 27th. Three sparrows (? species) arrived from over the sea on October 24th.

(concluded from p. 93)

had to be destroyed: flies appear to have been attracted in the first place by rotten fish adhering to the down. A pair which sat about in the early summer on the Mire of Vatnagard eventually nested and had young on July 17th and 18th, fledging about August 31st and September 3rd.

Non-breeders which made scrapes and were mildly aggressive were in Homisdale until the end of May, and on Wirvie Brecks throughout June and July: in each case one bird had a ring, so it seems probable that only one pair was concerned. There were two other non-breeding pairs. Attempts were made with hide and clap-net to trap some of the breeding-birds, but the Bonxies were rather more wary than the Arctic Skuas, and only three birds were caught. They were members of the 2 Vaasetter pairs and Byerwall, and their wing-lengths and weights were: 398 mm., 1,403 gm.; 400 mm., 1,444 gm.; 420 mm., 1,345 gm. It should be noted that the maximum wing-measurement given in Handbook of Brit. Birds is 405 mm.

28. The Bonxies' Breeding-Season, 1955.

KENNETH WILLIAMSON.

As with the Arctic Skuas, the Bonxies Catharacta s. skua showed a marked increase at Fair Isle in 1955. In all 13 pairs nested, laying 26 eggs from which 20 youngsters were successfully reared.

The oldest pair, on Eas Brecks, were the first to lay, their chicks emerging on June 3rd/4th. These early youngsters had the longest fledging-periods, 47 and 49 days. The two old-established pairs at Dronga also laid during the first week of May; they reared two young each, but the details of hatching and fledging and not known. The two pairs occupying Vaasetter and the Byerwall birds laid in mid-May and hatched their chicks between June 14th and 16th: the fledging-period of three of the four young at Vaasetter is known to have been 45 days, and the only chick at Byerwall (where one egg was infertile) took 46.

Next in order of laying were the Sukka Moor North and Brae of Lerness birds. The former, comprising a dark brown bird and a beautiful rufous ♀, were in their third season: they reared one chick which hatched on June 20th and flew for the first time on the evening of August 3rd, a fledging-period of 44 days. A second egg in this nest was infertile. The Lerness young flew about August 6th/7th on the summit of the Brae, - quite 300 yards from the nest-site. A new pair, non-breeders on Vaadal Moor in 1954, nested near the western end of the Airstrip, but lost their eggs in mid-June.

New pairs also nested at Dronga (raising one chick) and Thione, near the Vaasetter South pair. These birds hatched young on June 27th/28th and these had very short fledging-periods of 42 and 41 days. Other new breeders were a pair which occupied ground north of the Airstrip into the first week of June, then moved 400 yards across the Sukka Moor to hatch two chicks on July 6th/7th. One of these youngsters was so badly struck by blowflies, the maggots entering the body-cavity through the anus, that it

29. Recent Fair Isle Bird Ringing Recoveries.

M i s c e l l a n e o u s

SPARROW HAWK Accipiter nisus. Two of the 4 birds ringed in autumn 1955 have been recovered. A ♂ from the new Vaadal Trap on September 14th was killed at St. Jean-sur-Mayenne, near Laval, FRANCE, 800 miles south (Lat. 48 08 N. Long. 0 45 W.), on December 26th; and a ♀ from the Gully on October 9th was found dead at Cawdor, NAIRNSHIRE, 162 miles south, on December 29th. These records, which show how widely separated may be the wintering areas of birds passing through Fair Isle, bring our Sparrow Hawk recoveries to 6 out of 26 ringed, or 23%.

OYSTER-CATCHER Haematopus ostralegus. In Bulletin 2: 328 we recorded the recovery of two birds of the same brood, ringed on Buness, June 18th 1953. One was at Elie, FIFE, on July 4th 1954, and the ring of the other turned up in a mail-bag at Glasgow! Its origin has now been traced, and the bird was found dead at Charlestown, also in FIFE, on January 19th 1955, some 250 miles S.SW.

ARCTIC SKUA Stercorarius parasiticus. An intermediate youngster of the Brae East pair, ringed on July 17th 1953, was shot at Nissum Fjord, West Jutland, DENMARK, on August 10th 1955 (Lat. 56 23 N. Long. 8 12 E., - or about 410 miles SE.). According to Dr. KNUD PALUDAN, who made enquiries for us, the bird retained two of the 3 colour-rings put on it as a chick.

SONG THRUSH Turdus ericetorum philomelos. A 1st-w. bird taken in the Observatory Trap on October 22nd 1952 was found freshly dead at Allerød, Hillerød, Sjaelland, DENMARK, on October 14th 1955. (Lat. 55 56 N. Long. 12 19 E.).

MEADOW PIPIT Anthus pratensis. A local juv. (at 19 gm.) caught in one of the small Roadside Traps, July 11th 1955, was killed about October 22nd at Bidart, near Biarritz, Basses-Pyrenees, FRANCE, ca. 1,020 miles south (Lat. 43 26 N. Long. 1 35 W.).

ROCK PIPIT Anthus spinoletta petrosus. A local juvenile caught in the Yeoman Net on the shore on August 18th 1954 was found dead on the tide-line at Buchanness, Boddam, ABERDEENSHIRE (about 150 miles south), on April 19th 1955. This is the third Fair Isle Rock Pipit to be found wintering in northern Scotland (see Bulletin, 2: 330).

GREENLAND REDPOLL Carduelis flammea rostrata. One of two birds which flew against a lighted window of JAMES RAMSAY'S house at Sundraquoy, Uyeasound, Unst, SHETLAND, on the night of October 12th 1955, had been ringed by C.K. MYLNE on the island of FOULA (about 50 miles south-west), on September 15th. Both birds were kept over the 13th, a stormy day, and were released on 14th.

SNOW BUNTING Plectrophena n. nivalis. At Spurn Bird Observatory a big flock of several hundred Snow Buntings was present in January and February, and over 430 were caught in small traps baited with wheat. Among those captured was A62.245, a 1st-winter ♀ ringed at Fair Isle on October 31st 1955 in the new North Grind Trap. JOHN CUDWORTH caught it on January 28th and it was subsequently retrapped on several occasions, including February 12th, when its weight was 35.74 gm. This was an increase of 8.18 gm. on its weight at Fair Isle, where it may have been newly arrived, after some days of westerly weather. It is interesting to recall that a Snow Bunting was seen at Spurn in mid-winter of 1952 with a colour-ring similar to the combination put on 2 ♂♂ trapped at Fair Isle in autumn 1950. Spurn is about 415 miles S.SE. of Fair Isle.

B l a c k b i r d

Adult ♂, October 22nd 1954, in the Single Dyke Trap. Found dead at Newtownbutler, Co. Fermanagh, in NORTHERN IRELAND, on January 11th 1956.

1st-winter ♀, October 27th 1951. Found dead at Hammer Ogndal, Nord Trøndelag, NORWAY (64 N., 11 40 E.) on November 11th 1954. This is 520 miles NE. of Fair Isle and the farthest north of our 17 Norwegian records.

♂, March 14th - 15th 1953, in the Gully and Double Dyke traps. At Onarheim, Tysnes Island, 12 miles south of Bergen, NORWAY (59 53 N., 5 50 E.) - some 280 miles east of Fair Isle - on March 22nd 1955.

Adult ♂, November 3rd 1953, in Vaadal Trap. This bird was caught in a shed, and later released, at Forres, MORAYSHIRE (150 miles S.SW), anout December 13th 1955.

Adult ♂, October 29th 1954, in the Gully. Found at Dybe, Bonnet St., Jutland, DENMARK (56 31 N. 8 10 E.) on April 14th 1955, - probably still on migration.

1st-w. ♂ in the new Two-way Ditch Trap on October 20th 1955, recovered in early February 1956 at Glencolumbkille, Co. Donegal, EIRE, ca. 350 miles SW.

W h e a t e a r

Juvenile (wing 94 mm. tail 56 mm. weight 25.07 gm.) from the Gully Trap, July 9th 1955. Found dead in the first week of October at Campillos, Malaga, SPAIN (37 02 N. 4 52 W.), about 1,650 miles south.

Juvenile (wing 95 mm. tail 56 mm. weight 26.10 gm.) in the Gully on July 13th 1955. Apparently killed against overhead cables at Meaford Power Station, Stone, STAFFORDSHIRE (about 460 miles south), on September 3rd.

1st-winter (wing 97 mm. tail 58 mm. weight 25.76 gm.) in one of the small Roadside Traps on August 10th 1955. Reported from Azuaga, Badajoz, SPAIN (38 16 N. 5 39 E.), about 1,530 miles south, on October 9th 1955.

1st-winter (wing 96 mm. tail 54 mm. weight 29.93 gm.) from the Double Dyke on August 21st 1955. Found dead at Nethybridge, INVERNESS-SHIRE, about 175 miles south, on August 25th.

1st-winter (wing 101 mm. tail 59 mm. weight 31 gm.) Oenanthe oe. leucorrhoa, caught in the Double Dyke Trap on September 1st 1955. Found dead at Vera de Moncaya, Zaragoza, SPAIN (41 48 N. 1 42 W.), on September 24th 1955, - about 1,280 miles south.

30. Report on Flat-flies Collected at Fair Isle in 1955.

GORDON B. CORBET.

1. Migrant Birds.

Flies were collected during 1955 from 15 migrants. In the account below all these flies, unless otherwise stated, are Ornithomyia fringillina Curtis of the dark form (= O. lagopodis Sharp) to which all the local Fair Isle flies belong.

MAY. During May 101 birds were examined, all but 2 being passerines. They included 33 Robins and 33 of various warbler species. A TREE PIPIT Anthus trivialis on 14th produced the only fly of the month, and it proved to be a completely new species for the country. It was a ♀ and differed from Ornithomyia in its small size, lack of ocelli and reduced wing-venation. It did not agree with any of the common European species, and was finally identified by Dr. BEQUAERT of Harvard as Lynchia falcinelli Rondani. Dr. Bequaert writes that he has specimens from passerine hosts from various parts of Africa, but that the only reference to it in the literature mentioning a host is of its being found on shrikes in Tunis. On April 29th Mr. JOHN S. ASH collected a fly which he believes to be this species from a CORNCRAKE Crex crex at Portland Bill.

JUNE. Flies began to appear on June migrants simultaneously with their appearance on local birds, and 4 were collected from 25 examined, 10 being warblers.

3rd: 1♂ from Red-backed Shrike Lanius collurio.
7th: 1♀ from Willow Warbler Phylloscopus trochilus.
1♀ from Spotted Flycatcher Muscicapa striata. (This could have been aquired from a Twite in the catching-box at the same time).
8th: 1♀ from a 1st-summer ♂ Red-footed Falcon Falco vespertinus (Bulletin, 3: 5).

JULY. The only 2 migrants examined, Garden Warbler Sylvia borin and Greenish Warbler Ph. trochiloides viridanus (twice recaptured) were free of flies.

AUGUST. As in previous years flies were very rare on August migrants in comparison with local birds at the same time (see Bulletin, 2: 321-322). A total of 80, including 16 waders and 44 warblers, produced only three infested birds:

8th: 2 ♂♂ and 3 ♀♀ from a juv. Kestrel Falco tinnunculus. One carried 3 mites of the species we find commonly on flies from local Wheatears and which have not yet been determined.

13th: 1 ♀ from a juv. Dunlin Calidris a. alpina. It had under the base of each wing a large number of empty egg-shells similar to those of the mite Microlichus uncus which is frequent on flies from the local pipits.

24th: 1 ♀ from a Willow Warbler. This was one of a small, pale form of O. fringillina such as is found on parts of the Continent and in the south of England (see below).

SEPTEMBER. The 65 passerines examined were free of flies and only 2 birds of prey showed infestation:

4th: 7 ♀♀ from a 1st-winter ♂ Merlin Falco columbarius aesalon.

14th: 1 ♀ from a 1st-winter ♂ Sparrow-hawk Accipiter nisus.

OCTOBER. 7 birds were infested out of a total of 394 examined. (No flies from 32 birds in November).

5th: 1 ♀ from a 1st-winter ♂ Iceland Merlin Falco c. subaesalon. 1 ♀ from a Redwing T. m. musicus.

6th: 1 ♀ from an adult Blackbird Turdus merula.

9th: 1 ♀ from a ♀ Sparrow-hawk.

10th: 1 ♀ from a Song Thrush T. e. philomelos.

14th: 1 ♀ O. avicularia L. from a Redwing.

20th: 1 ♀ O. avicularia L. from a 1st-winter Blackbird.

The pale O. fringillina collected from the Willow Warbler in August is the only one of this small type found at Fair Isle during the last 3 years. The distribution of the two forms on the Continent is imperfectly

known. In the British Museum are 6 specimens from Scandinavia, all dark, and 3 from Iceland, 2 dark and the other apparently intermediate.

2. Breeding Birds.

Delousing of the five common passerines was again carried on throughout the season and 754 flies, all O. fringillina, were collected. In general, the pattern of infestation was similar to that of 1954 and it was of much the same magnitude; but in all species it was noticeable that the peak of infestation occurred earlier than in 1954. As the birds' breeding-season was not unusually early, the explanation is probably an earlier emergence of the flies, stimulated by the warm, dry weather in June.

Another interesting point of difference was that the Wheatears concerned in the end-of-August "rush" (27th-29th) were no more heavily infested than Fair Isle birds, and produced no effect whatsoever on the regular decline in numbers of flies taking place at that time (see Bulletin, 2: 313-317). Between mid-August and mid-September no fewer than 455 Wheatears were examined.

The relative numbers of flies on the 5 host-species point more strongly than previously to the suggestion that body-size plays an important part in determining the degree of infestation. Starlings Sturnus vulgaris again headed the list, the ratio of number of flies to number of birds examined being 2.22; but Meadow Pipit Anthus pratensis, Rock Pipit Anthus spinoletta petrosus and Wheatear were about equally infested with a value of about 1; and Twite Carduelis flavirostris bensonorum was lowest with 0.21. In addition, more Wrens Troglodytes t. fridariensis were trapped than in 1954, and the ratio for 20 juvs. in July and August was 0.15. The way in which the size of a bird determines the number of its flies is easy to understand. If there were 10 flies on the body of a Starling there would still be ample room for them to dodge the bird's bill during preening; on the other hand, if there were 10 on a Wren it would be a case of "standing room only" and the bird could hardly fail to catch one or more!

3. Marking Experiment

At the end of July it was decided to mark and release some flies with a view to determining their efficiency in finding a host. Some were marked as in 1954 with paint-spots on thorax and legs, and others were marked on the wings with very dilute paint so that the extra weight would be negligible. However, owing to the flies' habit of cleaning their wings with their hind feet, this proved a less effective method than the other, and a few of the recaptures could not surely be identified. The flies were usually released near the traps early in the morning in the hope of securing short-term recoveries during that morning's trapping.

Of 161 marked flies released in this way 12 were recovered in recognisable condition, the shortest time being 1 hour 20 minutes for a fly which found a Twite. Six other recoveries were made in less than a day. As before, there was no discrimination in host selection on the part of the fly, the hosts on which they were recaptured representing a random sample of the birds present. Only 4 of the 12 were recaptured on the same species as that from which they had originated.

4. Phoresy of Mallophaga

The feather-louse Sturnidoecus sturni Schrank was again found on many Starling flies. The percentage of flies carrying lice rose from 22% on the June juveniles to a maximum of 60% in mid-July. Some flies from the 2nd-brood juveniles at the beginning of August were very heavily infested, one fly breaking all records with 22 lice! The other fly on the same bird had 6 lice. All the lice (203) were sexed and it was found that 35% were ♂♂. The sex-ratio showed no definite seasonal trend except that the proportion of ♂♂ varied directly with the abundance of lice, rising to 47% when they were most common and falling to 12% when the lice were fewest. No immature lice have ever been found on the flies in spite of their presence on the birds at this time of the year.

31. Flat-fly Infestation on Skokholm in 1955.

GEOFFREY STANSFIELD.

In 1955 the examination of all pipits and Wheatears in the "Fair Isle Apparatus" for collecting flat-flies was continued. From the results set out below it has been possible to compare infestation in the two years 1954-55 and derive interesting results by combining the two sets of data. Examination was started at the beginning of the season in order that some adults should be treated, but of 16 examined none were carrying flat-flies. The first fly was taken from a migrant, a WHITETHROAT, on May 21st, and one escaped from a SPOTTED FLYCATCHER on June 2nd. The first fly from a local juvenile was taken from a WHEATEAR on June 11th. Tables 1 and 2 are given in the same form as in last season's report (see Bulletin 2: 318-319).

Table 1

Species.	Number examined.	Number infested.	Total flies.
Wheatear			
Oenanthe oenanthe	80	33	69
retraps	66	18	36
Rock Pipit			
Anthus spinoletta	93	21	57
retraps	23	6	12
Meadow Pipit			
Anthus pratensis	43	11	31
retraps	3	-	-

Table 2

Host-species.	Number of Flies.									
	0	1	2	3	4	5	6	7	8	9
Wheatear	47	16	8	5	-	2	2	-	-	-
retraps	48	9	2	5	2	-	-	-	-	-
Rock Pipit	72	10	6	1	-	-	-	2	-	2
retraps	17	2	3	-	1	-	-	-	-	-
Meadow Pipit	20	5	2	1	-	-	2	1	-	-
retraps	3	-	-	-	-	-	-	-	-	-

In comparing these results with those for 1954 it is seen that the infestation is of the same order, although the number of flies on infested birds is higher. Averages are 1.7 in 1954 and 2.3 in 1955. This may be attributed to favourable weather during the hatching-period of the flies, and to the fact that there was high mortality among first brood Meadow Pipits due to predation. Very few juvenile Meadow Pipits were to be seen before the end of July.

Table 3 compares the variation in infestation during the 2 seasons in fortnightly periods from June 11th. The Table is based on original trappings only and includes all three host-species:

Table 3

Year	Fortnightly Periods							
	1	2	3	4	5	6	7	
1955	88	50	45	65	22	13	8	per cent
1954	62	57	58	36	28	25	25	"

By combining the two years' results for Wheatears and including only original trappings it has been possible to throw more light on the seasonal distribution of the flies on this species. Table 4 shows the average number of flies on examined birds in weekly periods from June 11th:

Table 4

Weekly Period:	1	2	3	4	5	6	7	8	9
Mean number of flies per bird	1.0	2.0	0.5	1.3	1.3	0.8	0.5	0.5	0

(Slight rise to 0.2 in 10th week).

This is of particular interest when compared to the results of similar work by G. CORBET at Fair Isle, where Wheatears gave a single peak and the pipit species double peaks (Bulletin, 2: 313-7). Corbet explains this by the fact that Fair Isle Wheatears are single-brooded whilst the pipits have 2 broods, the peaks corresponding to the fresh influx of juvenile birds. P. CONDER has estimated that 60% of the Wheatears at Skokholm are double-brooded, and this would account for the difference in the results.

33. The Infestation of Birds by Fleas at Fair Isle in 1955.

KENNETH WILLIAMSON.

The collecting of bird-fleas by means of the "Fair Isle Apparatus" (see Brit. Birds, 47: 234-235) was carried on throughout the season from our arrival on May 4th until departure on November 11th. To get an idea of the degree of infestation and the distribution of the 3 common species on the bodies of birds the season was divided into 3 parts: A, Spring Migration; B, Summer Broods, and C, Autumn Migration. The dates delimiting these periods were arbitrarily chosen as June 23rd and August 17th, the former as the day on which juvenile Starlings became available for examination, and the latter as a convenient date before the onset of the main Wheatear passage and drift-movements from the Continent.

As in previous seasons Dasypsyllus g. gallinulae was the commonest flea on spring migrants, and Ceratophyllus gallinae the scarcest (see Bulletin, 2: 234-236). With the advent of the young birds, however - and especially of 2nd-brood young of the Starling, - the latter showed a marked increase and in fact equalled gallinulae in numbers; whilst during the autumn migration period the comparative positions of these two common species were reversed. The appearance of C. gallinae in numbers on the bodies of 2nd-brood young Starlings is interesting and suggests a new generation in the same nests as were infested by over-wintering fleas in the spring. Starlings rear both broods in the same nests, and probably the heat generated by successive broods serves to accelerate the fleas' cycle.

The majority of Starlings' nests are in dry-stone walls and it is interesting to note that this midsummer abundance of C. gallinae is reflected in hole-visiting and dyke-haunting species, the Wheatear and Wren, but not in open-country birds such as the Twite and the two pipits.

In spring C. gallinae and C. borealis were at about the same strength as in 1954, but there were fewer Dasyps. g. gallinulae. It is probable that this apparent decline is to be explained by the fact that fewer birds of species

Bird Fleas at Fair Isle

Host-species.	Examinations.			D.g.g.		C.gal.		C.bor.		Other
	Neg.	Pos.	Fleas.	♂	♀	♂	♀	♂	♀	sp.
A. SPRING MIGRATION										
Wheatear	14	10	13	1	-	-	3	4	4	1
Rock Pipit	1	2	4	2	2	-	-	-	-	-
Meadow Pipit	4	2	2	2	-	-	-	-	-	-
Blackbird	4	4	9	5	3	-	-	1	-	-
Redstart	4	7	14	5	4	1	-	1	3	-
Bluethroat	1	1	1	-	1	-	-	-	-	-
Robin	18	20	34	12	10	2	2	3	4	1
Blackcap	-	1	3	3	-	-	-	-	-	-
Garden Warblr	6	2	5	3	2	-	-	-	-	-
Whitethroat	14	4	5	1	1	1	1	-	-	1
Lesser do.	3	3	7	6	-	-	1	-	-	-
Willow Warblr	12	5	16	5	8	-	1	1	-	1
Spotted Fly	10	2	2	-	2	-	-	-	-	-
Pied Flycatr	1	1	2	1	1	-	-	-	-	-
Dunnock	2	4	8	2	2	1	3	-	-	-
Tree Pipit	1	1	1	-	1	-	-	-	-	-
White Wagtail	1	1	1	-	-	-	-	-	1	-
Red-backed Sh	1	1	1	-	-	-	-	-	1	-
Other sp.	8	-	-							
TOTALS	104	71	128	47	37	5	11	9	14	4
B. SUMMER BROODS										
Wheatear	238	34	42	12	8	4	9	8	1	-
Starling	118	35	60	-	1	25	33	-	-	1
Rock Pipit	183	34	46	15	22	1	3	-	4	1
Meadow Pipit	46	8	8	4	3	-	-	-	1	-
Twite	45	1	1	1	-	-	-	-	-	-
Wren	11	6	11	-	1	5	4	-	1	1
Blackbird	3	-	-							
TOTALS	644	118	168	32	35	35	49	8	7	2

"Other sp." (col. eleven) includes fleas lost or unidentified.

Host Species.	Examinations. Neg.	Pos.	Fleas.	D.g.g. ♂	D.g.g. ♀	C.gal. ♂	C.gal. ♀	C.bor. ♂	C.bor. ♀	Other sp.
C. AUTUMN MIGRATION.										
Wheatear	452	16	20	-	1	3	9	3	2	2
Starling	47	5	10	-	1	3	6	-	-	-
Rock Pipit	163	11	15	7	4	1	3	-	-	-
Meadow Pipit	111	6	6	-	4	-	1	-	1	-
Blackbird	153	6	7	-	2	1	3	-	-	-
Redwing	88	3	6	-	-	1	4	-	-	1
Redstart	4	1	1	-	-	-	1	-	-	-
Blackcap	18	1	1	-	1	-	-	-	-	-
Willow Warbler	39	1	1	-	1	-	-	-	-	-
Chaffinch	8	1	1	-	1	-	-	-	-	-
Other species	197	-	-							
	1280	51	68	7	15	9	27	4	3	3

likely to yield gallinulae were trapped in 1955. Sedge and Grasshopper Warblers, ditch-haunting birds particularly liable to infestation by this marsh-loving flea, were virtually absent in 1955, whereas they provided a sixth of the 1954 catch. Nor did we have Wryneck and Grey Wagtail, good providers of this flea in 1954.

Once again C. borealis, whose representative on the mainland of Britain is C. garei, is seen to be predominantly a Wheatear flea, although it was also in fair strength on passing Redstarts and Robins. A ♀ C. garei was taken from a Robin and a ♂ C. fringillae (hitherto unrecorded at Fair Isle) was found on a Whitethroat. Almost certainly, both had been introduced by the birds.

The Hon. Miriam Rothschild, to whom we are grateful for continuing to work on the material collected, recently published two important papers on bird-fleas in Trans. Roy. Entom. Soc. London. One of these, concerning the known distribution of C. borealis and C. garei, and the records of "hybrids" between the two which are found occasionally in mainland nests, together with a full discussion of the evolutionary significance of this phenomenon (pp. 296-317), is based to a large extent on the results of the research carried out at Fair Isle.

33. Lepidoptera on Migration in August 1955.

KENNETH WILLIAMSON.

It is now a commonplace observation at Fair Isle that good "falls" of birds reach us as a result of down-wind drift in anticyclonic airstreams blowing towards us from Continental shores. In past years we have noticed that these movements are sometimes accompanied by migrating Silver Y Moths Plusia gamma, and it was in the hope of learning more about the relationship between bird and insect movements that we added a Mercury Vapour Moth Trap to our equipment. During the latter half of August 1955 DAVID HARDY, a member of the Joint Schools' Expedition, assisted with the working of this trap.

The first season's work was exploratory, for little previous collecting had been done at the isle, and direct evidence of migration was slight. One period, towards the end of August, was particularly interesting, giving good evidence that wholesale movements of moths as well as of birds take place down-wind in anticyclonic airstreams. Mr. JOHN LORNE CAMPBELL, who first encouraged us to include Lepidoptera in our studies, took a wide variety of species, several new to his collection, in his M.V. Trap on the Isle of Canna in the Hebrides, between August 12th-14th and on August 24th-25th. Comdr. G.W. HARPER also records several interesting migrant moths in Inverness-shire in the early period and suggests that the prevailing south-east wind was responsible (Entomologists' Record, 68: 39).

August 10th-14th was a period of easterly breezes on the Continent south of a high which moved from Scotland to the Scandinavian Peninsula; and on the western flank of this high a veer of wind to a more southerly airt developed on 12th, continuing over the next two days. In the later period conditions were similar, with a high moving from Britain to Scandinavia between 20th-22nd and remaining firm till 25th, giving an easterly airflow in Central Europe veering south-east in England and France and southerly in the Hebrides. Temperatures were well above the average everywhere at the time.

Clear information linking bird and insect migration in this anticyclonic airstream comes from Great Saltee off south-east Ireland, where August 22nd-25th saw the development of one of the heaviest movements of the autumn. R.F. RUTTLEDGE informs me that the best days were 23rd-24th: on the latter, 2 Icterine Warblers were trapped. The only Swift of the autumn was seen on 23rd, and in this period the biggest-ever influx of Pied Flycatchers took place (p. 82). Sedge and Willow Warblers had peaks at this time, and extensive butterfly migration was going on. Numerous Red Admirals Vanessa atalanta, Painted Ladies Pyrameis cardui, and one or two Clouded Yellows Colias croceus, were seen each day, and Large and Small Whites were very common. A Green-veined White Pieris napi and others more regular at Saltee were also seen. On 26th, quoting from the Observatory Log, "Butterfly migration was seen 200 to 300 yards offshore coming into the island almost as soon as the mist cleared."

Some immigration took place at Fair Isle as well as at Great Saltee and Canna, although our best nights were 27th and 28th, 3 days after the biggest "rush" at Canna 250 miles to the south. Fair Isle's first record of a Dragon-fly, Aeshna juncea, was obtained on August 24th, and the first Silver Y Moth came to light on 25th. Red Admiral and Painted Lady were seen on 28th, and moths in the trap the previous night included two further P. gamma and our only Sword-grass, Agrotis ypsilon. The 30th was also a good night, with our only specimens of the Shears Hadena nana and Small Wainscot Arenostola pygmina, also two specimens of var. subfuscata of the Common Pug.

Many of the commoner species were flying at this time and some may or may not have been on migration. Triphaena pronuba was common at the South Lighthouse on the night of August 27th. Northern Rustics Ammogrates lucernea were practically all of the sooty Shetland form, though var. fenigera was captured on 27th. One of the commonest moths at the end of August was the grey typical form of the Autumnal Rustic Amathes glareosa, heavily outnumbering the very beautiful Shetland var. edda (blackish, with the

34. Bird Notes from Haroldswick, Unst.

MOORHEN Gallinula chloropus. A nest in the marsh was hatching on May 30th, - 3 eggs and 3 young.

GREEN SANDPIPER Tringa ochropus. One in the marsh on June 1st. The Venables, "Birds and Mammals of Shetland," do not give this species in their Unst list.

COMMON SANDPIPER T. hypoleucos. Single birds near a stream at Loch of Cliff and near the point of Hermaness on June 2nd.

LITTLE AUK Plautus alle. One swimming close inshore on November 10th. (Wind moderate SE.).

SWALLOW Hirundo rustica. On May 28th a big movement of this species, together with ca. 100 House Martins Delichon urbica, took place. See Bulletin, 3: 9, 18.

GREAT TIT Parus major. M.S. saw one at Norwick on November 11th, and D.S. reported one wintering from December 1st at the R.A.F. Camp nearby. On one occasion it was observed pecking at a disused margarine wrapper.

BLACKBIRD Turdus merula. D.S. found a late nest in a rose-bush on August 21st: it contained 4 young which flew 3 days later.

MAGNUS and DOUGLAS SINCLAIR.

(concluded from p. 107)

stigmata outlined in white), which had first appeared with 3 specimens on August 4th, a week or so before we took any of the typical form.

Earlier in the summer the Map-winged Swift and the True-Lovers' Knot, Hepialus fusconebulosa and Lycophotia porphyrea were common, the latter being "over" by August 18th. The Carpets Colostygia didymata and C. salicata flew by day on the cliff-tops in late August but were not taken at light, although the Garden Carpet Xanthorrhoe fluctuata came to the trap. The Rosy Rustic Hydroecia micacea was common in the village area but rare at the North Haven in late August, and the most abundant of all, as in former years, was the Antler Cerapteryx graminis.

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.

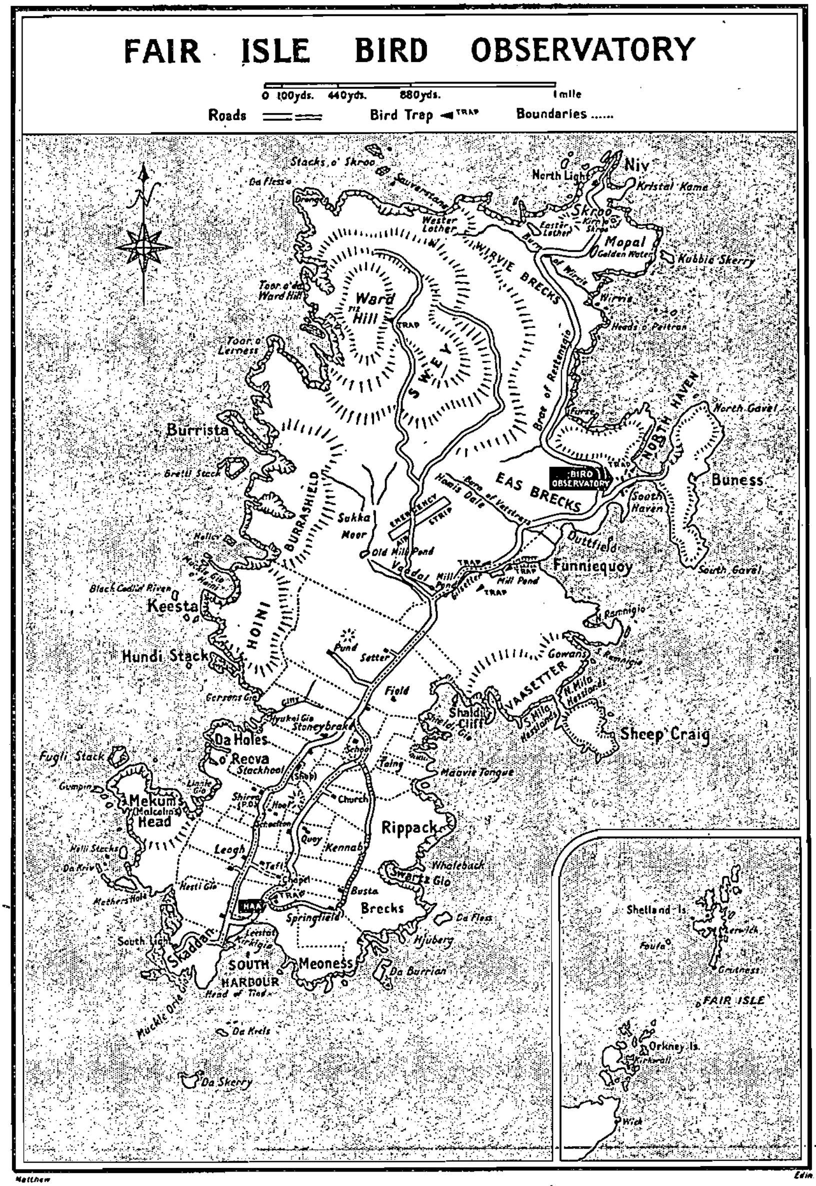
Applications.—Priority in bookings will be given to " Friends of Fair Isle." and to *bona fide* naturalists prepared to take part in the scientific investigations of the station under the leadership of the Director, and to help with such other duties as may be necessary from time to time in connection 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 TRAP
Boundaries ......
Stacks o' Skroo
Da Flessa
Niv
North Light
Kristal Kame
Skroo
Wester Lother
Easter Lother
Mopal
Golden Water
Kubbie Skerry
WIRVIE BRECKS
Burn of Wirvie
Wirvie
Heads o' Peitron
Toor o' da Ward Hill
Ward Hill
Toor o' Lerness
SWEY
Brae of Restensgio
NORTH HAVEN
North Gavel
Burrista
Bretti Stack
BURRASHIELD
BIRD OBSERVATORY
EAS BRECKS
Buness
Hoeis Dale
Burn of Vatstrass
South Haven
Sukka Moor
EMERGENCY AIR STRIP
Old Mill Pond
Outtfield
Funniequoy
South Gavel
Vaadal
Mill Pond
Black Codlin' Riven
Keesta
HOINI
Pund
Setter
Gowans
Hundi Stack
VAASETTER
Field
Gersons Gio
Stoneybrake
Shaldi Cliff
S. Mila Hesslands
N. Mila Hesslands
Sheep Craig
Da Holes o' Reeva
Fugli Stack
Stackhool
School
Taing
Maavie Tongue
Mekums (Malcolms) Head
Church
Rippack
Kennaby
Leogh
Quoy
Whaleback
Swartz Glo
Hesti Gio
Busta
Brecks
Springfield
Da Flesh
South Light
Skaddan
SOUTH HARBOUR
Meoness
Hjuberg
Da Burrian
Head of Tind
Muckle Ortie
Da Kreis
Da Skerry
Shetland Is.
Lerwick
Foula
Grutness
FAIR ISLE
Orkney Is.
Kirkwall
Wick
Matthew
Edin.