Bird Observations on Foula, 1954-55

Outside my windows at the Manse on Foula was not only my own ready-made Atlantic Bird Observatory, but also the breeding ground of many species of birds I would now have to go a long way to observe. In that first spring of 1954, I found an eider duck sitting on her clutch of greenish eggs not a hundred yards from my back door. As usual these eggs were warmly wrapped in their very own eiderdown. Eider ducks are large and brown, with a real Roman nose of a beak, which they use to pluck the soft downy feathers from their lower breast. These they use to line the nest hollow in any fairly thick vegetation that will hide their eggs. When they sit still, the subtle pattern of brown and grey streaks on their upperside is the perfect natural camouflage against a pattern of dead grass stems, so different from the showy drakes with their smart black and white livery. Ducks are designed to make nests, lay eggs and sit close and concealed to incubate them for almost a month. Drakes are designed to show off, especially in spring when they croon to their mates out on the water and toss their green-streaked heads as they display.

Ham Voe was like a natural arena for this, with the perfect viewpoint for any spectators along the top of the fifty foot cliffs, where pairs of fulmars sat on rock ledges, decorated with pink powder-puffs of thrift, cackling noisily to each other while the eiders made their softer, more tuneful music down on the sea. My own special pair just outside the croft fence offered a real chance to a beginner like me for a close-up photograph. Unlike most birds, eiders will sit tight almost until you stand on them. Their camouflage depends on it as their first line of defence. So a quiet approach, avoiding any sudden movement, should enable you to achieve a close-up showing every detail of that miraculous plumage pattern on the back, the head and long beak flattened down against the feathers, eyes wide open staring unafraid straight at the camera. Such moments are golden. It looks like trust, though it is probably sheer terror, controlled by a very strong instinct to sit tight. But don't overdo the test. If she does panic, the result is disaster. As she leaves in a frantic flurry of wings and a loud chorus of grunts and croaks, she excretes over the eggs her second line of defence, an evil-smelling squirt of green faecal fluid, which stinks to high heaven. No self-respecting fox would stay to sample those eggs and it mars the encounter for the photographer too. There were no foxes on Foula but I wouldn't put it past either the local ravens or a great skua to remove those eggs for their breakfast. The eider's trick is a protection against predators with teeth, but not against birds, which have little sense of smell.

Eiders on Foula, more than anywhere else I can think of, need to concentrate on their camouflage trick to protect their eggs. Skuas are notorious egg thieves and will even steal the eggs of neighbours of their own species if they are careless enough to leave them in the nest unprotected. This was one of the reasons I tried not to go into their breeding grounds up on the hill while they were sitting on eggs. The sitting skuas were hard to see until one was too close and they flew. Immediately, those eggs were at risk from crows or ravens or any of the big gulls, but especially from the skuas in the adjoining territory who might be watching for just such an opportunity. The gulls or crows would be too shy to steal while I was close by, but skuas are notoriously bold, especially in defence of their nest against any intruder, including man.

When I went ringing the young birds a month later in July, it was a hazardous business warding off the big brown bombers as they swooped at my head, with their webbed feet lowered and strong claws on the end of each toe ready to rake my scalp if I let them. The trick was to carry a stick protruding from the top of my haversack on my back so that they

struck that and not me. I also found that a wave of the hand upwards over my head as the dive-bomber swished past would deflect them – until a cunning bird, swooping out of the sun, caught me unawares. A slap on the side of the face by a Bonxie is no joke. It hurts!

Arctic Skuas are lighter and less formidable, but even more persistent and aggressive in their attacks. So I can appreciate the formal complaint by the Fair Isle crofters to their landlords, the National Trust for Scotland, that they be allowed to reduce the numbers of Arctic Skuas, so that they could attend to their shepherding without this considerable nuisance to their work. As upholders of the law and declared conservationists, it was a difficult complaint for the Trust to deal with. So, in the interest of their tenants, they did nothing, leaving it to the Fair Islanders to use their common sense and control the birds, hopefully within the law, as best they could. The Arctic Skuas of Fair Isle have been the subject of a long-term detailed study, one of the most thorough and revealing studies of a breeding species anywhere in the world. The Fair Islanders are not insensitive to the value of such studies and are proud of the fact that their island has seen such pioneering research, and relations between the crofters and the ornithologists are very good. So no doubt they had to thole the skuas to some extent in spite of the nuisance, though the islanders too were sometimes a law unto themselves when they felt that officialdom did not take full account of their peculiar circumstances.

I had a similar problem on Foula where, in the absence of any policeman or official upholder of the Wild Bird Protection Act 1954, I felt obliged to take it upon myself to remind the islanders of the new protection about to be afforded to all birds, with certain specified exceptions. Skuas were a case in point and of special interest to me. To the islanders, they were as familiar as, say, pigeons in Trafalgar Square or Princes Street Gardens, part of the scenery if occasionally a bit of a nuisance. To me, they were a national treasure, and even on the global scale we were the guardians of a very significant proportion of the world population. But the Foula problem was even worse than the Fair Isle one. The clash of interests, in addition to complaints about the nuisance effect of far more skuas than Fair Isle had ever dreamed of, was one that affected the crofters' pockets and their diet.

I discovered in my first summer in 1954 that there was a long tradition of egg gathering. Skuas' eggs are larger than hen's eggs and just as palatable. Theoretically, with a population which, at a very rough guess in those early days, I could put at 2,000 pairs of Bonxies and 250 pairs of Allens (to use the local names for a local problem), there would be on the whole island in the months of May and June, but especially May when they were freshly laid, at least 4,500 beautiful fresh eggs, free for the taking by anyone able-bodied enough to set off across the moor or up the hill with a basket and gather the harvest. It took time to find the nests, but what a prize - and for me what a problem!

The eggs are wonderfully camouflaged and very easy to miss, and many nests would be far distant from the crofts and only reached after a stiff climb of up to a thousand feet. But to several households, especially those with agile children, this was merely a challenge. The collecting dates were in their mental calendar as one of those spring jobs to be done to keep the food bills down and the nutritional value of their diet up. My pupils were a case in point. Was I, as their mentor and guardian, to deny them a source of protein, calories and vitamins after the deprivations of their meagre winter diet, which was sadly lacking in such luxuries? Some crofts had hens but poultry pellets cost money. Many pensioners had no hens, and so here was an opportunity for the able-bodied to be generous of their time and effort to distribute what they saw as nature's bounty to their deserving elderly citizens. It was a textbook case for social welfare and meaningful charity, and could even have been looked on

as an excellent school project along those lines; but now there was one big snag. It would soon be against the law and I knew it. I had been a member of the Royal Society for the Protection of Birds for some time, and had seen the long process of lobbying for parliamentary time bear fruit when the new Wild Bird Protection Bill was passed in 1954. It finally came into force in December.

Before the crunch came in spring 1955 when this tradition would technically become illegal, I consulted by post with the Nature Conservancy in Edinburgh and with the RSPB, and they took the reasonable line that in view of the circumstances it would do little harm if the islanders took a proportion of the early eggs. The optimistic condition was that the birds should be allowed to lay again and the second laying left intact. They acknowledged that the administrative cost of making a specific exception for Foula could hardly be justified, and they seemed to accept my point that unless I tried to enforce the law myself, which I was unwilling to do, it would almost certainly be flouted anyway.

When the spring of 1955 arrived, I had one problem with taking no action at all. I had started collecting data on the most accessible nests on the lower ground with a view to getting some idea of the breeding success rate of the Skuas – clutch size, hatching success, fledging success rate etc. It was also desirable to know the natural dates for laying, hatching and fledging, so that the period when the young birds were most in need of food as they grew could be compared with the availability of food for them. This was the most interesting part of the Skuas' lives, as their favoured method of acquiring enough protein for their chicks was by predation of other species.

Skuas are predators and parasites – not very nice labels to have. Many a time I sat up on the hills watching the Bonxies pursuing their prey, the gentle kittiwakes with their light dancing flight or the industrious little puffins, wings beating furiously as they fled before their pursuers, while the relentless power dive of the big brown bullies gradually overtook them. If the puffin was carrying food, as they so often did when they returned to their nest burrows, all they had to do was to drop their beakful of sandeels and escape while the Bonxie swooped to catch the silver prize in mid-air. This was heartless but at least not cruel to the puffin itself. Other chases were merciless when the adult puffin, without food in its bill, was the target and was often knocked down in full flight onto the water with a splash. If unhurt they could escape by diving, but often they were seized by the hooked beak of the Skua and held under the water till they drowned. Up on the hills in the Bonxie territories I often found their pellets of food remains, the bits which they couldn't digest and so disgorged. One such pellet contained, wrapped in a neat parcel of feathers, the complete skull and brightly coloured beak of a puffin. Like penguins, which we relate to because they also stand upright on two feet like us (and wear evening dress!), puffins are everybody's favourite seabird, jaunty, clownish, colourful. It was hard to like Bonxies, however skillful, after watching their relentless tactics against puffins.

I couldn't help noting that their breeding season was timed to fit with the period of maximum opportunity for feeding their young successfully, whatever the method. Taking the eggs would push this period forward in the calendar two or three weeks, while the birds whose eggs had been collected started again on the whole round of courtship, display, mating, and egg-laying before they could finally begin the long process of incubation. Thus human interference might have a significant effect on their success, and would certainly upset any attempt to study the synchronization of their breeding rhythm with availability of their prey.

I therefore decided to put up a notice in the shop giving the facts about the new law, the conciliatory attitude of the authorities, and asking, as politely as I could with such an unpopular message, for a little co-operation over my special study area. I sought permission first from Bob Isbister, the shopman, and though he did not seem to agree with my viewpoint, arguing in favour of local tradition and island customs, he saw no harm in my displaying my point of view to his customers. I decided to risk putting in writing that the official view was that taking some of the <u>first</u> laying of eggs only would not do any harm and could safely be continued as before, but that further delays to their breeding should be avoided.

It soon became apparent that it was not the detail the islanders were interested in but the principle involved. I never knew who wrote across the top in large pencil letters what I presumed was a quote from Rudyard Kipling: "There is never a law of God or Man runs north of 53". Foula's latitude is between 60°07' and 60°10' North, but the point was nicely made. It seemed rather typical of Bobby's jokey style and was a good-natured protest at official regulations which interfered with established custom. More uncompromising, but in rather childish pencil writing, was the comment 'RUBBISH' scribbled across the bottom of the notice, where I had detailed what I hoped to achieve by way of personal research in a limited area. Someone didn't think much of it. Could it have been one of my pupils?

Foula had a history of defiance of authority as though they felt that their extreme isolation gave them a kind of justified immunity from bureaucracy or inconvenient regulations. They paid little attention to Summer Time – "What's wrong with the time the Good Lord gave us anyway?" – though I always had my watch set to it so that I didn't miss the BBC's excellent Schools broadcasts which were so valuable to the children. And there was the famous case of Christmas which they still celebrated according to the old Julian calendar, the one everybody followed until Pope Gregory changed it all and lost twelve days to correct the discrepancy which had arisen over the previous centuries. One reason given was that a government which could tax tobacco wasn't worth paying any attention to anyway. So it seemed unlikely anyone would pay much attention to my strictures. In 1954 the law was still lax over the taking of wild birds' eggs and the tradition of collecting the Skuas eggs was seen as a quite justifiable exploitation of their peculiar circumstances, something of a compensation, if you like, for having to put up with so many other natural disadvantages of remote island living. Here's one small advantage we have over everybody else, so let's go egg gathering! The St Kildans collected hundreds of dozens of guillemot eggs, and bird fowling was also part of Foula's history. And that meant taking out the egg-layers, not just the eggs.

The first collection was made on the weekend of 16th-17th May which was both the traditional date and had been checked as suitable this year by a reconnaissance the week before to check whether the birds had started laying. Given good weather it was clearly considered normal for a number of the crofts to spend a family day on the hills armed with buckets and baskets into which the eggs were packed in grass for protection. The most popular area was Codlafield, a huge fairly flat area North of the Flick Lochs, which were about a quarter of a mile east of the North Bank cliffs. This was some way out from Ham but reasonably close to the two Harrier crofts and so not only accessible but with a very high density of nesting Bonxies. The greatest advantage was that it could be searched without having to toil up and down the steeper slopes where many birds nested. I went up there on 26th May to check up on the state of affairs ten days after the main collection.

Sitting up by the Flick Loch that fills a natural basin overlooking the whole of Codlafield, I spent a long time watching and counting. The birds fly up when disturbed, swoop at you if

you are at all close to a nest, and as they then cross over into other occupied territories, many skirmishes ensue as each pair is assiduous in trying to keep others away from their chosen plot of land. Nothing marks out the boundaries except what is in the birds' minds. Since they first settled in, in March, constant disputes and fights have gradually defined the area that each pair considers as its own. In an area of high density like this one, there is much competition and so the territories are smaller. Gradually, the lines over which each pair will not readily transgress onto their neighbours' ground are marked out by the behaviour of their defenders. When one first arrives, there is much activity and confusion. If one sits down quietly to watch from a distance, each territory owner tends to settle on his 'mound', normally a quite recognizable clump of grass or heather, which stands out and makes a good marker for them. As these territorial mounds are traditional and much used, the ground around them becomes enriched by the birds' droppings and so the effect is enhanced. Gradually the chases die away and one can start to count the occupied mounds, each with a proud Bonxie standing on top surveying his kingdom, ready to chase off any intruder. I counted 115 pairs of Great Skuas occupying territories on this one favoured area alone. I then had to go down and assess how many of these pairs had made nests, which is not easy especially when the nests are empty. After a long spell of walking in organised transects to and fro with my notebook, during which I found the majority of the nests, I reckoned that 80% of the birds occupying territories had built nests. The majority of these were now empty, ten days after the egg-collecting weekend. I only found 20 nests with eggs.

There is a simple test as to whether an egg is freshly laid or has been incubated, by placing it in a pool of water. If it sinks to the bottom it is fresh; a well incubated egg floats. All the eggs I found were tested and replaced in their nests, a time-consuming task. All were floaters. This meant that either those nests had been missed by the collectors, or, less likely, tested by them and found to be already incubated, and so left alone. I considered it extremely unlikely that a pair which had lost their eggs on 16th May and had re-laid by 26th could have had eggs which tested as well-incubated. There simply hadn't been enough time for that. Colonial species like Skuas usually have their egg-laying dates very well synchronized, and as the collecting date is decided on as being the date when almost all nests will have freshly laid eggs that are collectable for human use. So the nests which I found still with eggs were most likely to have contained eggs on collecting day but had been missed or rejected, and those I found empty had been robbed and the birds had not yet re-laid. I could conclude therefore that the minimum delay imposed on the Great skuas' breeding season was at least ten days.

It was not surprising that I learnt that the custom was for the islanders to collect on a Sunday and then return up to twice more at fortnightly intervals to collect any eggs freshly laid since then in the same nests. Rather like collecting domestic hens' eggs, this does not do the birds any harm, but it does prolong their nesting season. With bird species which lay a large number of eggs, it is the feel of a full clutch and the resulting tactile stimulus on the hen's brood patches, which tells her when to stop laying any more. With such birds, like the domestic hen, collecting from nests can be done at any time up to the penultimate egg without any risk of them being incubated. However, Skuas usually lay two or at the most three eggs, so there is not so much leeway for removing the eggs before the full clutch switches the bird off laying. So going out on Sundays, just to suit their own convenience, is not the most efficient way for the islanders to collect skuas' eggs. They would really need to go every day once the birds start laying. That way their laying period would simply be prolonged, as it has been proved that a hen will have a string of half-formed eggs in her oviduct when she stops laying which are then all reabsorbed into her system. So even

removing a number of eggs after laying starts does not preclude the hen bird from continuing to lay until the clutch is complete, which is when she turns 'broody'.

It was interesting that some of the islanders were opposed to the collecting of skuas' eggs, for it was known that the laird was concerned to protect them as being rare and the ornithological showpiece of Foula. Those who did were therefore reluctant to reveal the extent of their success. I soon found this out when I asked questions on my visits to crofts in an attempt to discover what the total crop might be each year, so as to assess the potential damage to the colony. However, by keeping my eyes open and being as tactful as I could, I managed to obtain records of 275 eggs actually collected in 1954, many of which I carefully counted myself. From knowledge of the collectors, I estimated this as about half the number actually taken and the total crop probably nearer 500 eggs. Incidentally, my position was slightly compromised by the fact that I found it difficult to refuse a couple of offers of eggs to try for my breakfast, which I thoroughly enjoyed. After all there was nothing I could do to return those eggs to unknown nests, so it seemed churlish to refuse such kindness. I worked on the principle that the Minister who shows he enjoys a pint with the boys is more likely to be listened to when he inveighs against the dangers of drink; and likewise I stood a better chance of upholding a principle in favour of the skuas if I was shown to be marginally involved. (I'm not sure of that is really logical, but it's a good excuse. At least it enabled me to discover how much more palatable they were than fulmars' eggs, which were fishy and rather rubbery, with a white that stayed transparent even after prolonged cooking: not to be recommended.)

To follow up my study of the egg-collecting episode, I spent a day of my summer holiday, on 26th July exactly two months later, ringing young Bonxies at the Codlafield colony. I managed to find thirty, out of a large number of young, which I was able to ring in spite of the aggression of the parents. There were a number of young on the wing that were undoubtedly the result of eggs laid normally in mid-May, not found by the egg-collectors and which had hatched normally in mid-June. At six weeks old chicks, will make a good attempt at flight and certainly be hard to catch for ringing. But most of the chicks were much younger and so crouched in the nest or nearby when I approached, knowing that their best defence is their camouflage. It is only when very near or at the stage of being able to fly that chicks will run rather than crouch. However, most of the thirty chicks handled that day were even younger and still had white down sticking to their brown plumage. These surely represented the young of nests from which the first eggs were taken in mid-May. Others were still in their white down and probably not more than two weeks old, and these were clearly from nests where the egg-collectors had removed eggs twice on 17th and 31st May, where incubation had not started till mid-June and which had not hatched till mid-July.

The most interesting speculation as a result of their breeding season being delayed by four or five weeks that summer is what effect this would have had on, say, the puffin population. Young puffins are a favourite prey for Bonxies in June when they come to the mouth of the burrow where they have been hatched, as soon as they are ready to fly. They stretch and exercise their wings as a vital preliminary to gain strength and so are sitting ducks, a very visible target for marauding Bonxies who patrol up and down the clifftops where most of the puffins' burrows are situated. If the young Bonxies' need for this food supply is delayed, could there be a chance that the young puffins would be on the wing and escape to sea in time to avoid becoming the prey of the skuas? Or that the young skuas would starve if this normally-ready food supply is not available to them just when it is needed? It would take years of study to answer these questions. The one sure answer is that the natural rhythm of the birds, and especially of the predators in relation to their prey, is the best answer to their

needs, for it has been worked out over millions of generations by the forces of evolution, without the interference of man.

Skuas were the speciality of Foula, but I was keen to assess the numbers of all the breeding birds of the island. I found it almost as interesting that there were blackbirds wherever there were gardens or buildings to offer them shelter and nest-sites. It was exciting to see twite sitting on the fence-wires like sparrows, but it was also of interest to assess how many house sparrows there were and how much their survival depended on man. Starlings were numerous and seemed to depend for their nest-sites almost entirely on man-made stone walls. I found three nests with eggs in a length of 45 yards of the boundary wall of the Mornington croft I lived on. By contrast, wrens were much more ubiquitous and had nests both on the crofts and on the cliffs where nooks and crannies in the rocks offered them a safe haven.

I started a habit of carrying round with me a pocket ringing pack with the small size rings suitable for putting on the legs of the smaller passerines, birds like wheatears, wagtails, pipits, as well as starlings and blackbirds. It was essential to be prepared to ring any nestlings when found, as there would seldom be time for a return visit in my busy schedule. In this way I ringed about 500 nestlings in that first summer. It may sound a lot but is not very significant considering the very low rate of recovery of small passerines. But with more systematic trapping of migrants as part of my long-term plans, there was always the chance of retrapping resident birds in the process and picking up some evidence as to how many of the birds we would see in winter would be incomers and how many part of the resident population.

There is so much one can discover from individually marked birds, with always the chance of Foula-ringed birds being recovered overseas. With migrant species like wheatears breeding on Foula, the chance of finding out their country of origin was always an exciting possibility. For instance, from previous ringing of the skuas we were beginning to discover their migration routes south and their wintering grounds. But there was always far more that we didn't yet know than the scant information provided by a recovery rate seldom above 2% or 3% at best.

Ringing is a precise science and produces hard facts on a subject where most theories are largely conjecture. So it has great value, but only on a big scale and on a long-term basis. All I could hope for was to be a very small part of that big scale. As a daily discipline it does have the virtue of being fun and of teaching one to be observant, and I learnt much about the everyday birds of Foula as I went about it.

Recording the migrants, the stray visitors, was a different problem altogether. The key to success is regular and frequent opportunities for observation in the field, accurate identification where possible, no guessing, and systematic recording on a daily basis. Hence my insistence on keeping a daily schedule of birds seen and a daily diary of observations. Of course, I could not cover very much of a 4,000 acre island on my own so that I was merely sampling what was there. I could never hope to present a comparison with an organised Bird Observatory like Fair Isle which can house about twenty observers, many of them highly experienced field ornithologists, and which includes a Warden and probably two assistants who are professionals and who really know the island and all the likely spots for finding migrants, and whose job is to be out and about most of the day. The most positive factor in my scanty observations on Foula was that there was this far more complete record being kept on Fair Isle, less than 50 miles away, against which I could compare what I was seeing. If,

for instance, I recorded an increase in the number of one of the thrush species like fieldfares, whether I saw a dozen or a hundred wasn't the important thing. But if the date on which I recorded them coincided exactly with a wave of fieldfares passing through Fair Isle, or better still if my birds arrived either a day earlier or a day later, we immediately had a pattern that might indicate where they had come from and possibly where they were going.

But why should migrating birds come to Foula at all, and how would they get there? A look at the map of Europe is essential here to understand what factors are involved. Let us consider the autumn migration when millions of continental birds are moving south from their breeding grounds, their numbers swollen by the annual increase of young. They come from Scandinavia, the Baltic countries, the Northern tundra, even from Russia, as well as from the western seaboard, Germany, Denmark, the Netherlands, heading for wintering grounds in the Iberian Peninsula, the Mediterranean, north or west Africa and further south even as far as South Africa. The numbers are immense, the phenomenon is millions of years old and the patterns of behaviour that make it succeed are built into the genetic code and so mostly instinctive. The birds 'know,' from innate genetic forces, when to leave, how to navigate, and which is their 'preferred direction of migration'.

This last is a technical term coined by the scientists who have studied this aspect of bird behaviour for many years, which they have proved by fascinating experiments with captive birds in aviaries. One of my heroes in this field was Gustav Rudebeck whose book "Studies in Bird Migration" was my bible on the subject. He worked for many years at Falsterbo, the south tip of the island of Öland in southern Sweden. The secret of his success was the same as for any other effective study of migration, to find a method of observing a largely invisible phenomenon. Öland, an island parallel with the south-east coast of Sweden, is a natural 'guiding line' (leitlinie) for the migrating birds whose 'preferred direction' in autumn is mostly south-west. The island comes to a point at the south-west and so acts as a natural funnel for the birds which pass that one point in countless thousands. Rudebeck termed it 'visible migration' and because of it Falsterbo has become a Mecca for bird-watchers.

There are many natural features which will channel birds like this, especially the day-migrants which must feed as they go, like the swallows and martins. As students, we found one at the south point of Norway, a ridge of hills running down to the sea near Borhaug, east of Lista, where we based our studies. We sat up there day after day from dawn, counting endless flocks of passerines passing overhead, the majority of them siskins with their distinctive 'swee swee' note making them readily identifiable. We felt it was a rare privilege to be able thus to put our finger on the pulse of this great annual phenomenon, so much of which is never seen or recorded by man.

There are several other ways in which we become aware of the hidden secrets of bird migration. Most people know there are no swallows in Scotland in winter, but if you travel to South Africa, they are there in thousands. If you wait in Scotland, suddenly one day in spring the swallows are back, happily singing their familiar twitter from the same rooftop which they occupied all last summer. If you go so far as to ring the young and can re-trap the swallows next year, it can be proved beyond any shadow of doubt that these are your birds, which have travelled 6,000 miles each way since you last saw them and have returned not just to the same country and district, but to the same barn. There's a clear value to the birds in this achievement, in that they have a head start when they get back. From day one they know the best nest-site, the local hazards, the best feeding areas and so on. But what we still do not know is the exact route they follow and how they find their way. Already with radio-

telemetry made miniature enough to be strapped onto the smallest birds without hindrance to them, it is beginning to look as if all the secrets will be solved as science progresses.

Personally, I rather hope not, as most of the fun and satisfaction is in the quest for knowledge. Already migration is on the internet, so that anyone can follow the arrival of the swallows into Britain in the spring and the progress of their journey north from the many individual observations logged in by bird-watchers. Soon this will become one of the biggest scientific projects in natural science as amateur effort and enthusiasm can be tapped to provide the necessary data. Such is the computer age! But when I arrived on Foula in 1954 the study of migration was at a very early stage and I had very primitive tools for the job compared with the technology of the 21st century. I may have tried out the direct method of watching 'visible migration' in Norway, but there was no hope of that on a remote island west of Shetland. All our birds were either resident all the year or summer visitors like skuas which only migrated south for the winter. My aim was to test out on Foula two factors which were just becoming clear at that period: 'North Sea drift' and 'the observation factor'. Fair Isle was the key, its Warden Ken Williamson my mentor.

Much work had been done on the study of bird migration by the 1950s but techniques were fairly simple and it was hard work. If one was lucky one might find a geographical feature – a river valley, a line of hills, a sea coast – where visible migration could be studied directly, as Gustav Rudebeck had pioneered at Falsterbo with over a million birds passing his chosen observation point every autumn. This painstaking research provided fascinating data on the movements of many species and a whole new perspective on our understanding of bird migration in Europe. Other scientists, like Geyr von Schweppenburg, using different methods had established some basic principles which seemed to govern these massive movements of whole populations of birds. The vast majority of species had south-west as their 'preferred direction' (Normalzugrichtung); but European species were divided into two basic groups, the other group moving south-east instead. Many of this group would end up passing through the Middle East, especially storks and birds of prey, providing another migration spectacle beginning to influence even the tourist industry in places like Eilat in Israel. In spite of the attraction of these recognised hot-spots of migration, indicating some favourite routes where birds were concentrated, it was also established for the first time that most migrants moved on 'a broad front', often at night, with many studies using the new technique of radar which had emerged as a result of war-time protection techniques against enemy aircraft.

The birds' ability to fly by the compass was another fruitful area for study, and theories on navigation were legion. The earth's magnetic field, Corioli's Force, the heavenly bodies: all were tested, challenged and re-tested; some were accepted, some rejected. Research was difficult, expensive, seldom conclusive. But some clear facts did emerge, especially birds' ability to navigate by the sun, moon and stars. It seemed to us almost incredible that creatures so small and fragile as warblers, even Goldcrests weighing only on average 5 or 6 grammes, should be capable of a system of navigation by reading the position of the stars by night. Yet experiments with captive birds in a Planetarium proved beyond doubt that birds could navigate by the heavenly bodies – though nobody quite knew how. This meant that the importance of clear weather for night migrants became a new factor in understanding when to expect movements and arrivals. In our Cambridge Bird Club studies at Lista in South Norway, we had observed how overcast weather grounded the flocks of birds waiting to take off across the Skagerrak. We had chosen this area because we regarded such birds as potential migrants to Scotland and we knew that if they ever arrived there, there was a

reasonable chance they would be observed at one of the Bird Observatories such as the one on Fair Isle. But Fair Isle, you will say, is north-west, not south-west, from the south tip of Norway. This is where the theory of 'drift migration' comes in.

I was not a scientist by training, but I found bird migration one of the most fascinating mysteries in the natural world. Foula seemed an opportunity to play a part, however small, in the research which was slowly unravelling the mystery. I had enjoyed many bird-watching studies in Scotland but always came back to a preference for those spring or autumn outings where some aspect of migration was the target. Scotland offered nothing by way of the spectacular visible movements of migrants, except perhaps rare opportunities to watch flocks of autumn thrushes, like redwings and fieldfares, newly arrived across the North Sea and moving on south through the valleys of the Cairngorms; or the geese from Iceland or Spitzbergen arriving in autumn and following a coastline route on their way south to their wintering grounds on the Solway. Apart from such species, which are fairly conspicuous, noisy in flight, and regular in their arrival dates to well-known feeding grounds, the great majority of migrants passing through Scotland were comparatively few in number and seldom if ever seen on passage. Migration just wasn't visible. We were in the wrong place geographically, stuck out on the end of an 800-mile peninsula running North and South well above the main flow of passage through Europe. So I concluded that in Scotland the best method of trying to get to grips with migration was the patient recording of the daily arrivals and departures which indicated birds on the move.

For the amateur, the most exciting method of doing this was to make use of the Bird Observatories. Here, daily observations had to be made, recorded, and then later laboriously co-ordinated on paper. But why was this only successful on the coast, often in remote situations, awkward to reach and exposed to the weather? And why did the very remote and barren places like Fair Isle do so well, with a longer list of different bird species than any other site in Europe? It did seem extraordinary that such a tiny speck on the map, half way between Orkney and Shetland, could produce such a wealth of data with species so varied and from such distant origins. Where Falsterbo provided an awesome spectacle, with up to 175,000 birds in a single day as their record count, Fair Isle provided a different bait for a different type of bird-watcher. As far back as the 1950s, the age of the 'twitcher' had begun. I remember my first encounter with students at the Cambridge Bird Club whose only topic of conversation was the latest rarity at the Cambridge Sewage Farm, an unlikely Mecca for anyone except those to whom the sight of new species, the rarer the better, was the spice of life. This trend in bird-watching, making it more a competitive sport than a hobby valuable to science, has gained steadily in strength ever since, and though of doubtful value except as a boost to the ego of the participants, it is great fun and has had the advantage of producing a generation of excellent field workers with almost uncanny powers of identification and a compendious knowledge of the finer points of rare birds' plumages. It has been boosted by huge technical advances in optical equipment, especially the development of the highpowered telescope as the standard field equipment for the enthusiastic bird-watcher.

All this was the stuff of dreams for me in 1954 when I considered what I could afford on a modest teacher's salary to help me in my fieldwork. I had a good pair of binoculars and bought the best camera I could afford, a Paxette with a detachable f2.8 45mm standard lens and low-powered f5.6 85mm telephoto lens, magnifying the image a fraction less than two times. I chose it on the basis of an excellent review of the lenses, a principle I have always followed. Spend your money on the lenses on which the final quality of your pictures ultimately depends, provided you have a user-friendly camera behind them. At that time no

self-respecting photographer who wanted to be able to capture wildlife images would dream of having anything less than a single-lens reflex camera and at least a 300mm telephoto lens. But I was a comparative beginner, and very soon after my arrival started taking pictures and was thrilled with the definition of these two excellent lenses. Moreover, the second lens turned out to have a vital role to play. When I got my first set of Kodachrome transparencies back, I suddenly realised I had no proper means of looking at them without electricity or a projector. But the 85 mm lens held to my eye, and the transparency held close in front against the light from the window, gave a superb close-up view in which I found the sharp detail a very pleasant surprise.

So much for the equipment I needed for the fieldwork I planned to do. What about the strategy for the fact-finding I hoped to achieve in the field? This depended on the understanding I had acquired both from my limited experience at the Isle of May Bird Observatory and from discussions with Kenneth Williamson about his experiences at the much more sophisticated one on Fair Isle. I needed to understand why so much effort was concentrated on these remote outposts, and why so much more was seen on barren islands than anywhere else. The simple answer was what I called 'the observation factor'.

On the mainland, migrant birds are hard to tell from resident birds. Rarities are so easily lost in the landscape, hidden away anywhere in the dense cover of woodland or farmland. But out on a rocky islet where there is virtually no cover and all there is has been deliberately planted under a wire-netting trap waiting to catch the birds, migrants stand out as totally different from the residents, which are probably all seabirds. They seem out of place; they don't belong. A bare rocky island is not their natural habitat, so they must be incomers. Moreover, with so little cover, there are comparatively few places where they can find food or shelter, so they are more readily located. And then, for the same reason, they can be observed more easily, and so identified and recorded with comparative ease.

On an island like the Isle of May, less than a mile long, it is not hard to assess the total population of birds in a day, so that any differences the next day give you hard facts, not guesses, as to what has arrived and departed. Plus, on a barren island, birds are easier to find, easier to see and identify and observations are easier to interpret. And if the favoured viewing spots have been properly prepared beforehand, with a bit of practice the birds can often be trapped and so examined in the hand before ringing.

An ingenious method of trapping had been developed in the very first island observatory, Heligoland off the coast of Schleswig-Holstein in Germany, where a series of gardens was netted in with funnels of wire leading to a catching box from which the birds could be easily extracted. Observers would drive the birds into the garden, where they would eagerly seek cover, only to find themselves in a narrowing funnel. Any that were missed in the first garden spilled over into the cover of the second – or third or fourth. As a result, few migrants escaped capture in these walk-in traps. Using cover as a bait for small passerine birds was gradually adopted as the best technique and had been highly successful on Fair Isle. It was a wonderful change from the days when ornithologists routinely shot rare birds in order to identify them and prove the record. Now the gun was extinct as a research tool and trapping, ringing and releasing was the order of the day. The old adage that "what's missed is mystery; what's hit is history" was an admission of a very imperfect science and a technique which killed the goose that laid the golden eggs.

The other question of why and how the birds arrived at remote Scottish islands in the first

place took longer to solve. But the first requirement in finding answers was a steady stream of results and records from the trapping system, to provide the evidence of what birds were migrating, and in what weather. One reason as to why they landed on islands was obvious – lighthouses. Once it had been established that many species fed by day and then, of necessity, travelled by night, a lighthouse was clearly a major influence in enabling them to make a safe landfall if their migration was over the sea. Birds homed in on these welcome beacons, sometimes in thousands, and often with heavy casualties as they were dazzled by the rays. The RSPB even set up a scheme to floodlight lighthouse towers and install perches round the light, which saved the lives of hundreds of migrants exhausted after a long journey.

But there was still the question of why the birds were crossing the sea in the first place. And why on an island like Fair Isle were there so many rarities, birds from Eastern Europe, from Russia or Germany, which should have had a safe overland journey to Africa but ended up so far off course. The reason was North Sea 'drift', a theory which Kenneth Williamson was developing during his first spell as Warden of the Fair Isle Bird Observatory.

When I was living in Edinburgh, I was a regular visitor to the Williamsons' flat in India Street during their winter hibernation away from Fair Isle. There, Ken would show me the latest weather map of the North Sea, covered with isobars, and his eyes would sparkle as he explained how a certain pattern of cyclone and anticyclone resulted in a strong easterly airstream from the Continent to the east coast of the UK. He would show me Eagle Clarke's excellent book on the task of recording visitors to Fair Isle, but express amazement at how little the early pioneers had understood about bird navigation and why birds landed up so far from their proper destination. In the early days, theories had been proposed about migration 'routes' and maps drawn with vague lines of arrows crossing the sea from Scandinavia, down through Britain to the wintering grounds in Africa. But why should small vulnerable land birds risk crossing vast distances of sea when they could more safely pass down coastlines and overland with only short sea crossings like the Skagerrak or Kattegat, or the Baltic Sea? There had to be a reason, and Ken was sure he had cracked it.

Working on Fair Isle from March to October gave him ample opportunity to compare the arrival and departure of the many birds seen and trapped on Fair Isle with the weather. Full weather records were kept, and barometric charts were obtainable from the Met Office, giving the wider picture across Europe. It soon became clear that wind direction was a crucial factor, not just at Fair Isle but especially at the points where migrants, heading on their 'preferred direction' on a 'broad front' were reaching their first major obstacle – a sea crossing. Visibility was also important for, as we now knew, if the skies were overcast, and especially if it was raining or foggy, not only could the birds not navigate at night with the stars obscured but they became distressed by adverse weather in a hostile environment. Ken's theory, backed by other research, was that birds lost at sea have a survival instinct to fly down-wind to achieve maximum speed and hasten their landfall. Then, when they arrive exhausted and hungry, their primary need is for cover in which to rest in safety and find supplies of insects or seeds or fruits. In this situation the ornithologist, waiting at dawn after a murky night of south-easterly winds and who has organised things so that the only cover, or at least some of it, is under his traps, will be the early worm who catches the bird – to distort the old saying.

The normal weather pattern in autumn, when the birds are moving, is of low pressure cyclones that originated in the Gulf of Mexico and crossed the Atlantic, bringing cloud and often rain in an anti-clockwise spin covering typically the whole of the British Isles, and then

heading across the northerly North Sea. The resulting westerly airstream tends to blow any birds that are migrating south-west down the continental seaboard inland rather than out to sea. Night migrants (i.e. those most likely to get lost) would be unlikely to start a journey in such adverse weather conditions, with contrary winds and the sky obscured. But if there was high pressure over Scandinavia – not uncommon for part at least of the autumn season – with a clockwise spin producing fresh easterly winds across the southern North Sea area, and sunny conditions stimulating the birds to migrate and enabling them to find their way at night, a massive migration could be taking place. Add in a low pressure system arriving over the Bay of Biscay (further south than usual due to the effect of the high pressure to the north), and its anti-clockwise winds would also produce an easterly airstream round its upper edge, reinforcing the windflow from east to west round the southern edge of the High.

The result is to introduce the most dangerous conditions for birds that, because of the favourable anticyclonic conditions to the north, are already on their way across water at dusk, after using the daylight to feed. The sky clouds over, they lose their way, the frontal rain hits them and they turn downwind, lost but heading for a safe landing. The next morning. up and down the coast of Britain, the coastal woods and spinnies are full of lost and tired migrants, what bird-watchers call a 'fall' and which sometimes can only be described as an 'avalanche'. Under such conditions many, perhaps thousands, may be lost in the sea as one of the hazards of migration. But the stronger ones will battle on until perhaps they see a light ahead and home in on the Isle of May with its automatic lighthouse standing 100 ft above the sea and visible for 30 miles out, or perhaps Fair Isle with two automatic lighthouse towers poised high above the water and flashing a beacon of safety to tired migrants. Hey presto, our remote islands have become a treasure chest of rarities or perhaps just of common migrants that can teach us a great deal about the patterns of bird movement.

My chief disadvantage was that Foula has no lighthouse as such, though it does now have a beacon light on the South Ness and houses with lights visible on close approach. The other disadvantage was that the island lay in 'the shadow' of Shetland for birds arriving from the east. If you can find a map which shows the Northern Isles in their correct positions – as a broken string of islands stretching north from John o' Groats (and not as inserts just off Aberdeen) – you can see how Fair Isle, occupying a position in the centre of the gap between Orkney and Shetland, is in a strategic position to attract any migrants approaching across the water from the south-east. The rest will end up either on Orkney, topped by the North Ronaldsay lighthouse at its northern point, or on the Shetland Mainland with the Sumburgh Lighthouse at its southern tip.

One of the first things Ken Williamson warned me about Foula was its location to the west of this string of islands. How many European birds would end up there if they were lost, tired and desperate to make landfall? Not many he feared, while at the same time recalling a number of interesting records from Foula, especially some American rarities (a Black-billed Cuckoo comes to mind) which must have come in from the north-west. So there could be birds arriving from Iceland or Greenland, or even strays from America, though these would hardly compensate for the much reduced number likely to arrive from the continent of Europe across the North Sea, due to the 'shadow' effect. But it was all guesswork until somebody was prepared to find out, and both he and I were glad I was getting the opportunity to do just that.

Naturally, when I started to explore the island, one of the things I was looking for was the sort of shelter tired migrants would make for on arrival. It was immediately obvious that

there were very few places with any cover higher than a few feet, and no trees or shrubs growing higher than the stone walls that sheltered them. One could probably count the actual trees on ten fingers — one apple tree and one elder in the garden at Burns; several stunted sycamores and some flourishing currant bushes in the garden at Ham looking over the beach at Ham Voe. This was a walled enclosure designed as a kaleyard, and usually had a flourishing crop of cabbages in the autumn, making it quite the best patch of cover on the island and my selected spot for my proposed Heligoland trap. Further up the Ham Burn towards the Post Office, at a corner with a high bank to the north, was a small sheltered patch of shrubs and reeds which constituted the sort of place warblers and other cover-seeking birds would home in on. But the ground was steep and angular and too difficult for me to try to build a trap over. So in the summer of 1954, I set about building a small Heligoland trap at the end of the garden which had the most cover.

The shape of a walk-in trap is important. The best I had seen were those which turned a corner as the funnel narrowed so that the birds, being driven into it, flew round the corner looking for an escape route, only to find a blind alley with a glass-fronted catching box as the final deception. The glass at the end was sloped down so that there was no impact as the birds rushed to escape, only a deflection downwards into a wooden box which had a trapdoor on top operated by a string from outside.

The trap took a few days to complete with the help of several islanders. We were lucky that some old water-pipe was lying down by the harbour, as valuable materials towards the end of their useful life tend to do in a place like Foula. Having ascertained that it was genuinely redundant, we managed to bend it into U-shaped hoops round rocks and an old rusty winch down on the beach. Upended and with their ends buried into the soil, these made a line of hoops curving gently round the corner of the garden wall, an excellent frame for the six-foot wire which was tied down over the pipes in strips to make a wire-netting tunnel some twenty feet long. A wooden catching-box, mounted on legs at waist height with holes in the side covered by two sleeves rescued from somebody's old shirt, completed a bird-proof trap with access for a human hand from the outside through a sleeve to extract the bewildered birds. The whole structure was only slightly taller than the stone walls surrounding the kaleyard and just high enough to walk into when driving birds into the funnel. It wasn't completed until 1st October, by which time I had recorded sufficient migrants, in small numbers, to be sure it would fulfil a real need.

A few excerpts from my diary of spring 1954 will show the type of records I was making, right from the start, of birds which were clearly visitors and evidence of migration in progress. All I could do at first was note them down and then wait to see whether my records tied in with others later published by Fair Isle or elsewhere. I did not have the time or opportunity to make any attempt to co-ordinate records at the time by telephone, though theoretically this could have been done by someone who was full-time on the job. Each day was an opportunity to see something new, something that told a story of that strange urge that so many birds share to set off into the unknown, following old instinctive patterns of behaviour to reach far-away places, in this case across miles of inhospitable water, either to breed there or to move on to a final destination.

For me, especially at the start when I did not know quite what to expect, there was a sense of expectancy and excitement as to what the day might bring. Of course, it all depended on the weather and how much time I would have to make observations in the field. I listened avidly to the radio weather forecasts and gradually learnt how to read the signs, from news of fronts

and anticyclones and the wind direction of gale warnings, that told me what birds to expect and to look out for.

After the first Black Redstart, always an early migrant in Scotland, on 26th April, and half a dozen Wheatears seen on my first major exploration of the island on 1st of May, my first passage migrant was a lone House Martin on 3rd May, flying round the Manse as though looking to make its home under my eaves. The weather was now clearly favourable and things began to happen:

"May 4th The first day with a real variety of species and evidence of migration. Thrushes well represented with 5 Fieldfares at the S end and Mrs Isbister reports a flock of 20 yesterday, and an owl (species?) and corncrakes which she knows from previous years. (Her reports seem to be reliable and she has some decent bird books.) Two Bramblings, and Corn and Reed buntings by the burn. An unidentified warbler was seen by the school but disappeared before I could get the glasses onto it.

"May 6th A definite increase in Wheatears which seemed to be everywhere. Flocks of Fieldfares feeding on the moor above the school and moving north all the time. First properly identified warbler, a Whitethroat on the fence at the Manse. A bird flew over with a call like a Lapland Bunting. More or less a silhouette, and the call can be confused with Snow Bunting so no definite identification.

"May 7th Even more Fieldfares working their way north through the island. A δ Redstart identified from the schoolroom window during a History broadcast. Mrs Gear pointed out to me a little yellow bird which turned out to be a Siskin feeding on the rigs beow the school.

"May 9th A flock of Snow buntings feeding in the garden, including a \circlearrowleft in full summer plumage of pure blacks and whites. Also a whitethroat again and 2 Bramblings in the Leraback area."

These records in my third week on Foula were typical of the casual observations I was making in my normal school routine. My morning trips down to South Biggins to collect young Eric Isbister for school added to my opportunities, not least because his mother Aggie Jean was very interested in birds and took a real interest in looking out for unusual species for me. One or two other islanders latched on to my enthusiasm for spotting migrants and would report things to me and I soon learnt who knew their birds and who didn't.

The 9th of May was a Sunday and I soon found that my duties at the church really meant that observations on Sundays were not likely unless they were close to home at the Manse. But for weekdays I developed a routine of trying at least once every day to look at the area between the school and the harbour at Ham, and especially the Ham yard where I planned to build my trap eventually, as being the area most likely to attract migrants within easy reach of my daily round. So on the Monday, with a weather forecast of south-easterly winds, I set off for school in high hopes and my diary entry showed the first real evidence that Foula, although off the beaten track to some extent, could still produce interesting evidence of 'North Sea drift':

"May 10th With the winds right over a large area of N.E. Europe for the last few days, today's influx was overdue rather than unexpected and made a good start to the

week. First signs were a swift over Mornington, and then a party of Lapland Buntings at Leraback on the way to school. These included at least two males in full summer plumage, a feature easily picked up in flight when they were first seen. They fed all day in a field above the house and were still there when I was going home in the evening. At the Voe in the school mid-morning and lunch breaks several new species were added: a Sand-martin, 3 Sedge Warblers, a Lesser Whitethroat. Decided to go back for the small box trap I had made over the weekend, and as I dashed home on my bicycle at lunch time, there was a Wryneck perched on a stone at the top of the Brae. I was just able to get a good view through binoculars at about ten yards range. A noticeable feature was the appearance of a black line on the cheeks and crown, like a dark pencil line over mottled plumage (not in any of my bird books). In the evening at the south end, the bird was surprised while sleeping when I suddenly came upon it at 4 feet range with its head tucked underneath its wing. I tried to catch it under my jacket but it woke and flew to the fence where I nearly caught it again from the other side. The bird was clearly tired. Also seen several Corncrakes and a Water-rail which I nearly caught in the old watermill below South Biggins. Also 10 Whimbrel and 3 Curlew there and a Kestrel hunting over the burn.

"May 11th Many of the migrants seem to have gone, though my coverage was not so good today and did not include the South end. Hirundines in numbers for the first time with 4 Swifts, 10 Swallows, 2 House Martins. Best bird of the day – a Longeared Owl sitting by the croft fence and looking for all the world like a rabbit at first glance. Allowed a very close approach so that the 'ear' tufts were well seen. This will undoubtedly be the same bird that Mansie of Quinister had reported over the weekend at his croft.

"At 8.50 p.m. a party of thrushes (7 Fieldfare and 2 Redwing) were heard overhead and watched leaving to the East. There was a S.E. breeze with a little cloud and haze. The birds climbed steadily to about 1000ft. and then flew off as far as the eye could see with glasses due East all the way heading for Shetland. The Fieldfare were calling as they went.

"May 11th Leaving the house this morning on the way to school, I took a chance look at a row of house sparrows on the fence and one of them turned out to be an Ortolan Bunting. Its long pale legs were noticeable. Call 'chip,chip'. Head not very green so probably a \bigcirc . Noticeably like a house sparrow. Otherwise migrants were left-overs from the 10th, with hirundines still prominent, and 3 Whitethroats seen in several places in the central cultivated area. Another party of Fieldfares heard departing this time at 9.15 p.m. calling as they climbed high in the failing light of dusk."

I wrote a fairly full diary of my bird observations from day to day as I began to get the measure of the island's breeding populations, though I could never even attempt a complete survey with the time I had available. Migrants petered out towards the end of May. There was a cuckoo on 27th May, looking a bit out of place perched on a fence near the Nurse's House; a dapper Blackcap on the 28th at Ham, and a wave of swallows catching flies over the Ham burn on 29th. There was always something nostalgic about encountering such familiar birds in such unfamiliar surroundings. I normally associate cuckoos with wooded heathland

or hill country in the Borders, blackcaps singing in mature woodland, and swallows hunting flies over farm fields where they nested in big barns or open sheds.

On 30th May I had a rare treat with two whitethroats caught in a small drop-trap together, but two different species seldom seen together in the field for comparison – a Lesser Whitethroat and a Common Whitethroat. The trap was of a design where a bird can find its way in but then cannot get out again, and I had set it in the cover below Leraback by the Ham Burn on the off-chance that some small insectivorous bird might wander in. This system demands frequent attention to the trap to avoid birds being trapped inside for too long. Unwisely I left it set on a Sunday, planning to go down on my bicycle two or three times to inspect it. Andrew Umphray had spotted the two birds fluttering inside and kindly came up to the house to tell me. There was quite rightly a note of reproach in his message, especially as it was a Sunday. He was one of the most regular churchgoers and although he was very polite about it, I couldn't help feeling that he didn't think much of a 'Meenister' who looked after his congregation at the expense of the 'peerie birdies'. So I thanked him profusely and leapt on my bicycle.

My remorse was, however, tinged with delight when I discovered this opportunity to compare in the hand these two similar species: the Common Whitethroat, a rich chestnut brown on the back and with a grey head, which shouts its scratchy song from a prominent song post, and the Lesser Whitethroat, a slimmer, greyer bird with a dark patch on its ear coverts which normally skulks in the shadows or sings its long rattling trill from the depths of a bush. With a Whinchat near the Manse and the previous day's Blackcap still about, I had four typical migrant species as evidence of a movement of small passerines back to their northern breeding grounds and blown off course as they went. Two of them went on their way marked, carrying my rings on their legs, though I couldn't help feeling that the chance of them ever being recovered was extremely slim, so precarious was their onward route from Foula. The swallows had gone the same day, and if only they too could be caught and ringed I felt they had a far better chance of survival. Swallows look as though they were designed for migration, pure aerial efficiency with such effortless flight at high speed. As day migrants, it only takes an anticyclone with clear skies for them to resume their journey and be off.

On 2nd June, after reporting a Short-eared Owl getting a rough time from the Arctic Skuas at the edge of the crofting area in the Hametoun, there is a more unusual entry in my diary:

"A flock of ten Oystercatchers near Biggins at the south end and with them their tame 'shalder'. (The Anglicised version of their Norse name Tjaldur) This is quite the tamest 'wild' bird I have ever encountered, sitting in front of their fire sleeping or guarding their front doorstep and pecking the legs of strangers who attempt to get past. It expresses its anger most forcibly with a shrill and vociferous piping. It chases the cats and the dogs out of the house and if in a bad mood will even peck the hand that feeds it. It is quite free to fly and sometimes meets one when halfway across from Dykes."

This oystercatcher, which is like a domestic pet but still consorts with wild birds when it feels like it, must have been hand-reared to have become so imprinted with 'human' behaviour. It was affectionately called Charlie, and later in its life disappeared and was thought to have died. There were, however, reports in the Shetland Times of a very tame oystercatcher adopted by an office in Lerwick whose staff fed it all winter with crumbs at their windowsill.

These synchronized with the date of departure from Foula, and when it disappeared from its winter quarters, lo and behold, Charlie reappeared in Foula to take up where he left off. Where does a half-domesticated bird acquire such direction-finding skills as to return 50 miles to its former home?

I made many observations on the Skuas. The first Arctic Skua's egg on 31st May coincided with the first display on the ground. This became the regular pattern whenever I went onto their territories, when they land quite close by and throw themselves into a highly convincing broken-wing display, shuffling along trailing one wing while at the same time wailing with a particularly pathetic call like a baby in pain. If one makes a move to follow them, they flutter ahead until a suitable distance from the nest area when, without effort, they suddenly lift into the air and return to their starting point. I made a further note on this behaviour at Sukkimires near Loch on 3rd June:

"Arctic Skuas displaying all over the place and clearly had eggs though only one was located. The nests are much harder to find than Bonxies with virtually no nest material used at all and the eggs well camouflaged. It's the birds themselves who completely give the show away, grovelling on the ground and making a pathetic and plaintive crying with the bill held open and the pink gape showing. Recovery from this injury-feigning is far too quick to maintain the deception, and enables one to judge where the nest is by turning back as soon as the display stops."

So sometimes the instinctive behaviour is not so clever after all.

There were also eider ducks nesting all over this moorland area, sitting very tight and trusting to their camouflage. I approached one sitting on four eggs to within six feet when she suddenly took to the air, a move which immediately attracted an attack from the neighbouring pair of Arctic Skuas, one of which swooped and hit the eider quite a smack in mid-flight as she flew off towards the loch.

I had noted fulmars sitting on eggs for some time now but was amazed at some of the inland nest-sites well away from the cliffs which are their normal choice. Now I observed:

"Fulmars nesting here as elsewhere a long way inland, one having laid an egg beside a stone wall that borders Loch (the croft) and another inside one of the plantie-crubs there. The mere presence of some stones seems to satisfy the old cliff-nesting instinct now."

Later I noted that there is hardly a ruin, a wall or any rocky outcrop that doesn't have its resident fulmar, such is the housing shortage in their little world.

On 5th June, while visiting crofts at the north end, I took time to walk along the edge of the boulder beach at Wurr Wick where there were over 50 Black Guillemots on the water, presumably preparatory to nesting there. But the fulmars were already sitting on eggs on all of the ruined crofts along that stretch of coast – three pairs at Springs; two at Freyars, one on top of a wall head or on the ground at its base inside the house, a nice sheltered spot.

Various counts of other species give some idea of the rich breeding population of birds on this island, surrounded by the life-giving sea with its rich supply of food, especially sandeels:

"8th June. A count of 80 Arctic Skuas within 200 yards of one small lochan called Rosie's Loch on the area within view of my peat banks.

"12th June. Many shags' nests below the banks on the East side with eggs numbering from 1 to 5 and the first young bird newly hatched seen today. On these low cliffs and quite separate from the main colonies on the West cliffs, rough estimates are Puffins about 500, some already carrying food in their bills; Razorbills c.100; Guillemots c.50. At least in this area one can reach a numerical guess whereas on the main breeding colonies it is virtually impossible as so many are out of sight from the clifftop. The numbers there must be huge."

Another entry in my diary for 12th June concerns a species seldom seen as a genuine wild bird in Britain now: the Rock Dove, from which all the variations of domestic pigeon have been produced by selective breeding over countless generations. Since all these varieties can interbreed in the wild as feral pigeons, pure-bred Rock Doves are hard to find nowadays. However, they nest in all sorts of caves and crannies in the West cliffs of Foula and outside the breeding season many can be seen feeding in flocks on the crofts.

"There has been a marked diminution in the number of Rock Doves about in the fields in the last few days. This may account for the reports by Pennie and Venables (Birds and Mammals of Shetland) that there were very few on Foula, their visits being usually about this time of the year for obvious reasons. The biggest flock I have recorded was of 65 birds feeding on the road by Burns on 8th May, but there were constantly up to a dozen on most of the crofts and especially Mornington every day of that month. Now it is quite something to see even one or two so presumably they are all in attendance at their nest sites on the West cliffs."

All through the nesting season I was ringing young birds in the nest as much as I could find time for, mostly Blackbirds, Wheatears and Starlings. Blackbirds were in all sorts of locations but usually close to houses and easy to get at. Several people helped in this effort by reporting their local birds to me when I visited them and so saving me the time spent trying to locate nests. Starlings nested mostly in stone walls on the crofts, some too far in to reach, and often quite close to other nests. Three nests in 8 yards of the wall at the outlet from the Mill Loch near Mogil was the greatest density recorded.

Wheatears are a different story. They are one of my favourite birds, partly because they love the wild stony places on open hillsides where few other species are found. Like most of the chats, they perch on top of things where they can be easily seen, and with their smart grey backs (or sandy brown in the female), warm pinky breast and the striking white rump and black wing pattern when they fly, they are as handsome as any of our summer visitors. They nest normally in hollows under rocks, often inaccessible even to long arms. Two found on 21st June were in very damp sites, one down a rabbit burrow and one in a hole in the middle of a peat bank, an unsuitable place to rear young birds. Perhaps they were drier when the birds started laying in May.

I watched these birds carrying in food for their young and carrying away the droppings. It is noticeable how wheatears do not just jettison these droppings in flight as other species do but carry them to a place where they can land and put them on the ground. Perhaps this is an attempt to avoid leaving a trail of droppings which might lead a predator back to the nest-site? The pair in question had five young which seemed to be doing well in spite of the

dampness, and with some difficulty I was able to ring them. A few days before, it took me a whole evening to find and then ring only eight nestling wheatears and the comment in my diary was:

"The wheatear population is very scattered and there are probably not so many pairs as would appear at first sight. No nest has been found yet nearer than 200 yards from the next pair and most are much further than that. The chief difficulty however is the time factor involved in finding them as each one entails tracking down the birds to their nest-hole, which calls for patient and careful watching. Even then some of the burrows are quite inaccessible or so deep that the young can easily escape down the hole and out of reach."

The two broods ringed on 21st were fitted into my normal routine by careful spotting of the birds as I made my way home from the shop in the evening. Another nest was found on 23rd when I was working on my peat, this time in a rather dangerous place in a dry peat stack all ready to be barrowed home, a good dry warm site provided the owner doesn't take his peat home just yet.

I had visitors on 22nd June who came to stay for a week and I had my first experience of trying to introduce friends to the island in a limited time. It was school term and the weather had broken so that we were out on some days after school when I would have done far better to have gone home and caught up with some of my unanswered mail. However, the extra effort involved helped me to catch up with the progress of some of our more interesting birds.

We covered the area beyond Ham Voe up the east side on a cold wet miserable afternoon which made me realise what a wonderful spring I had enjoyed so far. There were a few Arctic Terns on the Taing Head, which meant it was time to check on the colony up at Ruscar. There were Ringed Plover, Oystercatcher and Rock Pipits all looking as though they had young, but the most spectacular event we witnessed was the huge gathering of Kittiwakes at Rosie's Loch, the traditional lochan where they come from the west cliffs to wash or later to gather their nest material. Kittiwakes are grace personified, light on the wing with jet black tips to their dove-grey flight feathers, but their most striking characteristic is their call from which their name is derived. You couldn't call a bird by any other name which shouts 'Kittiwake, kittiwake' at you all day long. My diary entry reads:

"There were at least 1,000 kittiwakes on Rosie's Loch as we approached, and as usual they flew from there over to the nearby cliffs after washing. There they seemed to gather on the cliff at Hodden Geo even though there are no nests there, as a kind of communal activity with all the usual noise found at the nesting colonies. They settled on the ledges which are well whitened with their droppings. Certainly today this was a sheltered spot from the strong West wind which must make life on the West cliffs pretty unbearable. However, we could not be sure whether these birds were from a breeding colony or not. All the birds on the bathing party were without exception in full adult plumage, though there were separate parties of immature birds at Hodden Geo which don't appear to take part in these forays inland."

On 26th June we eventually got up to Ruscar and found a total of 45 terns' nests, mostly with clutches of two eggs, though three had three eggs and nine only one. We only saw one pair of Common Terns, all the rest being Arctic Terns, with probably 100 birds present. The nests were spread out all along the red rocks below the green grassy slopes of Ruscar, a continuous

band of activity all within 200 yards of the sea. The pleasure we had from watching all this colourful activity, the dancing flight of the long-winged adults with their dark red beaks, the subtle colours of the camouflaged eggs in scanty nests of grass on the rust-coloured rock, was marred by our witnessing a pair of waifs meet an untimely end in the surf offshore:

"Two eider ducklings were spotted without an attendant adult, helpless powderpuffs of down drifting on the swirling water. A wily herring gull also spotted them and made a quick meal of one while the second paddled madly away to escape but was soon drowned in the surf on the rocks nearby. Such is life – and death – in the hectic struggle for survival.

"We saw many young eiders, and I have been keeping a watch on several nests all containing only three eggs each. With so many enemies they will need bigger broods than that to maintain their numbers, though there do seem to be plenty of eider ducks around."

Within the week of their visit, I also managed to take my friends to see Robbie's Shearwaters where, in deference to Robbie's wishes, we left the two burrows we had looked at before undisturbed but found a third with an unmarked bird in residence which was duly ringed. Although the night was calm and conditions seemed ideal, few birds were seen or heard and we could only get an answer to our calls from one underground voice. On a previous outing with other visitors on 18th June, we had examined Robbie's demonstration nests where he showed us the sitting adults on 20th May. In each case this time, we found both adults on the nest so that we probably hit off the night they came back from a fishing trip to allow the sitting bird to go off the following morning. The two adults ringed on 20th May were now back on their nests, having been found absent by Robbie on an intervening date, but this time we were able to ring the second bird of each pair and then let them scuttle back down their burrow until the morning. One or two other birds were watched arriving in the dark, and just after midnight one was spotted coming in. It flopped down close beside us and scrambled down under a large rock to its nest where it was greeted by its mate with the most ecstatic interchange of greetings and caterwaulings. Altogether on that night, we saw 7 or 8 birds but still had no idea whatsoever of the total size of the colony.

We also saw perhaps four little dark shapes in the gloom which, with their weird flight calls, were identified as Storm Petrels. Twice they fluttered very close to us, showing a flash of white in the tail as they passed and disappeared as quickly as they had come. Again, absolutely no estimate could be made of the size of the colony. This was a new bird for me, a 'lifer' in bird-watchers' jargon, and not the first or last Foula had to offer. I would prefer perhaps to see a new bird in daylight to get a better idea of its size and colour, but then I would miss the magic atmosphere of the 'simmer dim' and the looming outline of the Noup overhead. I can hear now the sound of the distant surf coming up from the tideline far below, and picture the wilderness of giant rocks and boulders amongst which these fragile feathered wanderers of the ocean choose to come ashore under the cloak of night to make use of our island to lay one large egg to maintain their species. To add to all this mystery of why and how they do it, when the off-duty birds fly off in the morning, it is reckoned they will skim the surface of the Atlantic all the way to the Bay of Biscay to find food for themselves and the single chick to come. That means going nearly a thousand miles for breakfast. No wonder old Robbie loves and cherishes 'his' birds.

A diary entry for 28th June shows the sort of interesting observations one can make in a place like Foula, quite incidental to the day's normal activities and without going out of my way or spending much extra time:

"Young Wheatears, Rock Pipits and Meadow Pipits were all seen flying for the first time today. The Twite's nest found on Hamnafield with 5 eggs had hatched and I ringed 4 young birds today. On my way home a Fulmar was found in one of the 'plantie-cribs' by the burn.

"As so often a Fulmar gets into a crib which is a circular stone enclosure with no gate and cannot get airborne again, and normally thrashes around inside until it dies of starvation. We caught this one, ringed him and released him from his prison."

Built for sowing cabbage seedlings to protect them from the gales, cribs are well built with high walls which fulmars with their webbed feet can seldom climb. Although magnificent fliers over the water or in the updraught off a cliff face, Fulmars need space on water or land to get up enough speed for take-off. The few flaps a crib allows are nothing like enough to get them airborne. If they can climb the wall they can then take off from the top into the wind without much difficulty. If not, they are doomed unless rescued, but cribs are seldom visited and usually deep enough to hide what is going on inside. I have found one, more isolated than usual, with three dead Fulmars inside and the grass completely flattened by their desperate efforts to escape.

Another later diary entry records one of those inexplicable observations of those senses which some birds seem to have which we cannot explain, probably because, having developed language instead, we ourselves have lost the ability to communicate without words which they have retained. This is what I recorded, verbatim:

On my return last night, I looked in the box trap set in the garden ... and found a Twite in it. The bird was removed, weighed, ringed and put in a box on the shelf near the window in the study. (It was too dark to release it.) To stop it from struggling, a cover was put over the box and only a very small gap left for air. This morning, when I went to re-weigh the bird, I noticed another Twite sitting on the outside window-sill just opposite where the trapped bird was enclosed in its box. I had heard no sound from the bird in the box and indeed when I looked inside it was still asleep with its head under its wing. However, the bird outside was sitting at the nearest point possible to the bird inside, on the flat exposed surface of the window ledge. By stalking along outside below the window with a net, I was able to catch it, and found it to be another juvenile bird. It too was duly weighed, ringed and released shortly after the captive bird had been let go and had returned straight to a patch of groundsel seed outside the window where it was feeding busily to make up for the lost feeding time of the early morning. I watched the two for some time, hoping for some evidence of their relationship, and sure enough shortly afterwards an adult Twite flew down beside the bird feeding on the groundsel. This made it look very probable that the adult was one of this juvenile's own parents. This same adult then flew across to the fence where the second bird was sitting and fed it in the normal manner. So it appears likely that the bird which came to the window outside was of the same brood as the captive bird inside the room. It is hard to postulate any physical sense by which the second bird could have detected the presence of the first bird inside the house, which was so carefully enclosed in a covered box. And yet on no other occasion has

any bird before taken to sitting on a wet and windy day on an exposed flat window-sill with no perch and no shelter."

Truth is, indeed, often stranger than fiction.

When I returned on 11th July from a week in Lerwick on the Mainland of Shetland, attending the annual Lay Missionaries' Conference, the Gears told me of a visit they made to Ruscar where they found 110 Arctic Terns' nests, a big increase on our count of 45 pairs on 26th June. I didn't manage to go up there again till 23rd July, by which time there were more nests than we had time to count and we reckoned there were about 600 terns present, with nests covering a large area, most still containing eggs. This is fairly typical of tern behaviour, though this dramatic increase is a bit later in the season than one might expect. A colonial species like this is stimulated to join a colony by the noisy social behaviour of the birds already there, but although a colony may suddenly increase in size over a period, it can just as suddenly be deserted en masse if anything upsets the rhythm of their communal behaviour patterns. At Ruscar that day, there was also a large number of one-year old birds present, non-breeding but caught up in the excitement and noise of the colony. Unlike the adults, these young birds have short tails without the long graceful streamers, and their bills and legs are black, not red.

What a contrast these birds make with, say, the Red-throated Divers which were one of the more spectacular species on Foula. One could perhaps call the dozen or so pairs on the island a 'colony' but the pairs each occupied a separate small lochan, with one pair also nesting on the much larger Mill Loch which I passed every day going to and from school. By contrast, the pair we visited after ringing 37 tern nestlings at Ruscar was occupying the tiny lochan on top of Crougar, the ridge on the way back from Ruscar to Sukkimires. They had one chick, which was large enough to swim and dive. Though the adults are sleek and rather majestic, with striking feather patterns, the chicks in their first plumage with bits of nestling down still sticking to the feathers are ungainly and awkward looking. The adult bird flew off as we approached with anxious cries and the chick then dived as its first method of escape. But whenever it surfaced it again panicked because we were too close, and dived again. Soon it looked short of breath through repeated rapid dives, so we hastily withdrew to allow it to recover.

By far the most important and most interesting colony on Foula was the huge assembly of Great Skuas or Bonxies, and I took every available opportunity to get up the hills to count them. To make best use of my limited time, I undertook fewer but longer expeditions, covering a whole stretch of hillside each visit and trying to assess first the numbers of birds, plus if possible the number of nests and, eventually, eggs and chicks. This was a very big undertaking and I have frequent notes in my diary of whole evenings spent on the hills, or occasionally a big day, probably a Saturday during the school holiday in July, counting some of the wide sweeps of hill grassland on the north or south sides of the main block of hills whose summit was the Sneug at 1373 feet. Most days I had a clear view of the Mainland stretching from Ronas Hill, Shetland's highest point to the far north down to Fitful Head in the far south. Many days, Fair Isle was a grey shape 50 miles to the south-east and once, luckily when I had a borrowed cine camera with me, I could pick out the hazy outlines of most of the Orkneys, including the hills of Hoy some 90 miles away on the south horizon.

Bonxies are bold, brash and belligerent. They make wonderful aggressive noises, not easily described in letters but a nasal 'Nyah nyah' is perhaps the nearest one can get to the guttural

cry of a pair as one approaches their territory and they start circling in a threatening way, or sit watching to see how close you will dare go to their nest site. They have absolutely no fear. If you have a dog, you probably escape the first mad onslaught as they turn their attention to diverting what they see as the worst enemy. But soon enough, if you carry on into their territory, the boundaries of which they know but you don't, they attack in earnest.

Here is an entry from my diary for 19th July when I was doing a ringing excursion on the south side of the Sneug along Tounafield above the Uffshins. I had reached the slopes of Hamar with a fabulous view down into the Wick of Mucklaberg, where there is a small hollow in the hill over which I counted 45 birds in the air at once, which I estimated as probably representing 25 pairs. A characteristic of Bonxies is for both birds of the pair to be present on the nesting territory together, and nearly always the swooping attack was by both birds together. So it appears that the adults probably feed close to where they nest, something indeed I had evidence of later that day. But first an experience on Hamar:

"On one occasion only was I struck by the swooping bird but this was enough to make me very wary over the next few nests. I was ringing a nestling and had already noted the difference in behaviour between this bird with a chick and the previous pair which had a territory but apparently no nest. Instead of swoops from one direction only followed by a leisurely flight round to the point of attack again, this bird dived from both sides of my position, turning over at the top of the upward swoop after swishing past my head and diving straight into a second attack from the opposite side. On one such swoop the bird struck me with both feet out, on the side of the head – a slap that would have put a Hollywood face-slap to shame. On the return swoop she tipped the top of my beret. After that I didn't give her a chance but ducked at the last moment or I have no doubt she would have struck me again."

It was a warm dull day, after several days of misty weather with all too much rain. I was lucky to have young Jim Gear with me, as our plan was to ring as many nestling Bonxies as we could find in this dry spell. It was exhausting work, as most nests contained only a single chick. As Bonxies normally lay two eggs, this meant searching the area close to the nest for the second chick. Though young chicks are covered with sandy-brown down they can blend surprisingly well into the background when they crouch low. As soon as they grow proper feathers through the down, which are mottled and streaked for camouflage, one has to be very close to spot them. In a dark hollow or against a ridge of black peat they are invisible, and we must have missed many. However, when we did a systematic search of a nest territory, we often still only found the one chick so that a total of 37 birds ringed represented a long day's work.

The difficulty at the end of the day is trying to estimate how many nests this total represents. Only two or three pairs of chicks were found crouched close together. In each area we tried to estimate the total number of adults holding territories and defending them by swooping at us or any other intruders such as gulls. On Tounafield there were 30 pairs; on Hamar probably 25; over the ridge onto Hornalie there were another 50 pairs. Here we only found 14 young on the ground, so perhaps our search was not quite so thorough. As we walked, we could tell when a nest was near as the birds started to swoop at us within about 50 yards of each nest. Searching for nests that were not at first obvious was only done when this aggressive behaviour was encountered. In this way, we reckoned that we covered all the ground occupied by breeding birds.

The main lesson of the day was that any figures are bound to be estimates and there were two awkward factors. Most areas seemed to have more pairs holding territories than were actually breeding there. And this area had almost certainly been farmed for eggs early in the season, and we had no idea what effect this was having on final figures. So either we had to count the adult birds and then try to work out what proportion were breeding; or we counted the number of chicks found and ringed, and tried to estimate what proportion of the total this represented. The task was daunting and Foula began to seem rather a large island. Certainly there were few parts of it where Bonxies were not breeding. On the area covered on 19th July, young of all ages were found, including some still in down and not more than a week old, and several fully fledged and probably able to fly. One surprise was finding two dead chicks which were half eaten, and two adults were disturbed from this meal. There was no evidence that skuas had killed them but skuas were certainly feeding on them. All other evidence from pellets was of fish as their food.

I marked 22nd July 'A Skua Day' in my diary, setting off up the Ham Burn valley on the left of the road north from the Schoolhouse. This area of the peat moor, known as the Bitten, like much of the low-lying ground, was occupied by Arctic Skuas and offered a fascinating place to study this dimorphic species, with its dark and white phases. The young birds here were well fledged and we ringed three pairs of chicks, all the offspring of similar parents, two being dark/dark and one light/light. Not surprisingly, these chicks were like their parents. But dissimilar parents are not uncommon, and the intermediate chicks harder to classify until they are well grown. I was collecting data on the proportions of the different plumages but reckoned it would be a long, slow task, probably over many years, to check the hereditary pattern of the colour phases. I knew that Ken Williamson on Fair Isle was embarking on a long-term study of Arctic Skuas in a more scientific way than I could ever hope to do, but perhaps I could collect some comparative data that would be of value.

Up above the Wilse Hill, west of the source of the Ham Burn, is Overfandal Loch in a hollow of the hills at the foot of Overfandal. Although the Sneug towers above this valley, much of the area is fairly flat and so easier to traverse looking for Bonxies nests, and we ringed 21 young Bonxies between Hamnafield and Bark Hill. Many were still in pairs and close to the nest in which they had been hatched. We got the distinct impression that on the steeper hills on the south side, the young dispersed further from their nests and were harder to find. Here at Overfandal, the pattern of their distribution on the flatter ground was much easier to discern and to divide up into Bonxie territories. Another feature noted that day was their preference for the wetter hollows in the hills. Here the density of nests was always higher, as it is with the Arctic Skuas on the lower ground. It would seem that shelter from the wind is probably the key factor here. The young Bonxies were now mostly well fledged and some flying quite strongly. This meant that the days of just walking up to them and picking them up for ringing were nearly past for this year, and there were some chases after birds either running off or even fluttering across the grass. Fortunately, most still showed a strong instinct to crouch rather than run, and so were caught without difficulty. Once they have decided to make a run for it, however, they never go back to the crouching reaction and can then be quite fierce. As I recorded in today's diary entry: "Two birds escaped me and one gave rather fiercer resistance than I liked."

If you head up the hill and over towards the North Bank beyond the Kame, there is a group of small lochans called the Flick Lochs. We returned and covered this area on 26th July. As it was after a visit to Blowburn, we didn't start work till after 5 pm. There was a high density of Bonxies up there. On the slopes of the Sneug, we counted 100 birds in the air at once and

ringed 30 young, which is perhaps another indication of a high proportion of non-breeding birds. But the most striking difference up here, where we were quite close to Foula's huge seabird colonies on the high cliffs, was the evidence of what the Bonxies were feeding on. My diary entry records what we found:

"The vast majority of the food found here consisted of dead puffins. While I was having my sandwiches, I sat at the top of the Hoevdi cliffs, at the foot of the slope up to the summit of the Kame. Several Bonxies were watched in what must be their normal method of obtaining food for themselves and their chicks – wandering up and down the cliff faces among the hordes of seabirds continually coming and going there. One was seen to grab a flying puffin in its feet in mid-air and fly off with it, but the puffin escaped and flew off. Another was watched diving on a puffin and then catching the food it dropped. The evidence was to be found all over the ground. One or two nests produced a number of pellets almost all consisting of feathers, and one containing a complete puffin's foot. Other food items found during the afternoon were remains of 20 puffins; feathers from one kittiwake; remains of 3 young Bonxies; half a dozen pellets containing bones and feathers probably of puffins again.

"Finally, there were at least two gatherings of unoccupied adult Bonxies on top of the hills, like the one down on the Mill Loch, which seem to be of non-breeding birds or perhaps a sort of bachelors' club. When the hens are sitting on eggs earlier in the season, these are possibly social assemblies of off-duty birds as well as group of birds not yet old enough to breed but caught up in the activity of the larger colony. Twenty-seven birds were counted on the Flick Loch and a similar number on the high shoulder between the Sneug and the Kame. As usual, there were some mysteries. Two nests quite close together high on the hills each contained a chick still in down, with the eggshells still intact in the nest. They were only 35 yards apart and both at exactly the same stage. What happened here, and why were they so much behind the rest of the colony? The amount of food remains on these two nests indicated a long period of feeding by the adults. Perhaps the first young were lost to predators and these were second brood chicks? Who knows?

"Altogether a most interesting and exhausting day."

Another diary entry:

"27th July. One of the best days of the summer in spite of gale warnings. Spent part of the day trying to photograph the bathing activity of the Bonxies on the Mill Loch, but they are too wary to allow a close approach. After being disturbed, however, they are remarkably persistent in returning over and over again to their place on the water. There were about 60 or 70 there most of the day, and the loch is never without any. They come over from Hamnafield for the most part, and seem to take a particular delight in dropping down 1000 ft from the top of the hill to the loch with wings half closed and making the most wonderful whistling noise of the wind through their feathers as they drop like stones to the surface, often spiralling round as they go, to help break the speed of their fall.

"As if this spectacle was not entertainment enough, three waders called in at the loch during the time I was there, a curlew, a redshank and yet another wood sandpiper, on delicate yellow-green legs which stretched out well beyond its tail when it flew,

calling its distinctive shrill tri-syllabic note, full of the mystical music of wild, wet places. Such a mixture of familiar birds to remind me of home, and unusual birds to brighten my day!"

The gale warnings of course came true and the end of the month was wet and windy in true Foula style. This made the Mill Loch a quite different place; but in spite of the rough surface the Bonxies were still there in good numbers. This is no picnic either but a serious business of ritual bathing, with much wing-flapping and dipping under the surface, and birds lying right over on their backs, feet kicking in the air before flying up to the bank to preen & gossip. I found their 'club' a welcome diversion while walking home along the road in pouring rain.

THERE IS NEVER a law the Mange God

29th APRIL, O'1955. Man runs north Shetland

of 53

UNDER THE "WILD BIRD PROTECTION ACT" OF 1954
WHICH CAME INTO FORCE ON 2nd DECEMBER LAST, ALL WILD BIRDS
TOGETHER WITH THEIR EGGS ARE PROTECTED BY LAW. IF THE LAW
WERE TO BE ENFORCED THERE WOULD BE A \$5 FINE FOR EVERY BIRD
SHOT AND EVERY EGG TAKEN, EXCEPT FOR HARMFUL BIRDS SUCH AS
THE GULLS, CROWS, ROCK-DOVES etc., AND THIS PROTECTION COVERS
THE BONXIE AS WELL AS MOST OF THE SEA-BIRDS.

EXCEPTIONS HAVE BEEN MADE TO THE NEW ACT IN ONE OR TWO CASES WHERE THE BIRDS OR THEIR EGGS WERE BEING TAKEN FOR FOOD, WHEN SPECIAL PERMISSION WAS SOUGHT FOR THIS PURPOSE. NO SUCH PERMISSION HAS BEEN SOUGHT FOR ANY AREAS OF SHETLAND YET NOR FOR FOULA, BUT IT IS CLEAR THAT THE LAW IS NEVER LIKELY TO BE ENFORCED MERE. I HAVE CONSULTED WITH THE BIRD PROTECTION AUTHORITIES IN SCOTLAND AND THE NATURE CONSERVANCY WHO HAVE EXPRESSED THE OPINION THAT LITTLE HARM COULD BE DONE BY THE TAKING OF EGGS HERE AS BEFORE.

I AM ANXIOUS HOWEVER TO MAKE A STUDY OF AT LEAST A FEW PAIRS OF BONXIES UNDER NATURAL CONDITIONS WITH AS LITTLE INTERFE ENCE AS POSSIBLE. I WOULD THEREFORE BE MOST GRATEFUL IF THE BONXIES' NESTS ON THE LOW-LYING GROUND, AND ESPECIALLY ON CROUGAR AND SUKKIMIRES, COULD BE LEFT ALONE AND THE RIRDS ADLOWED TO INCUBATE THE FIRST LAYING OF EGGS. I ALSO HOPE TO MAKE AN INDIVIDUAL STUDY OF THE SINGLE PAIR WHICH NEST BETWEEN THE KIRK AND THE NORTH HOEVDI AND I WOULD BE PARTICULARLY GRATEFUL IF THEY COULD BE LEFT UNMOLESTED. THE NEST WAS ROBBED IN 1954 JUST AT THE MOST INTERESTING STAGE OF MY OBSERVATIONS.

PHANK YOU.