SCOTTISH BIRDS

THE JOURNAL OF THE
SCOTTISH ORNITHOLOGISTS' CLUB

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Contents of Volume 5, Number 5, Spring 1969

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Vol. 5 No. 5 **Spring 1969**

Edited by A. T. MACMILLAN with the assistance of D. G. ANDREW and M. J. EVERETT. Business Editor, T. C. SMOUT.

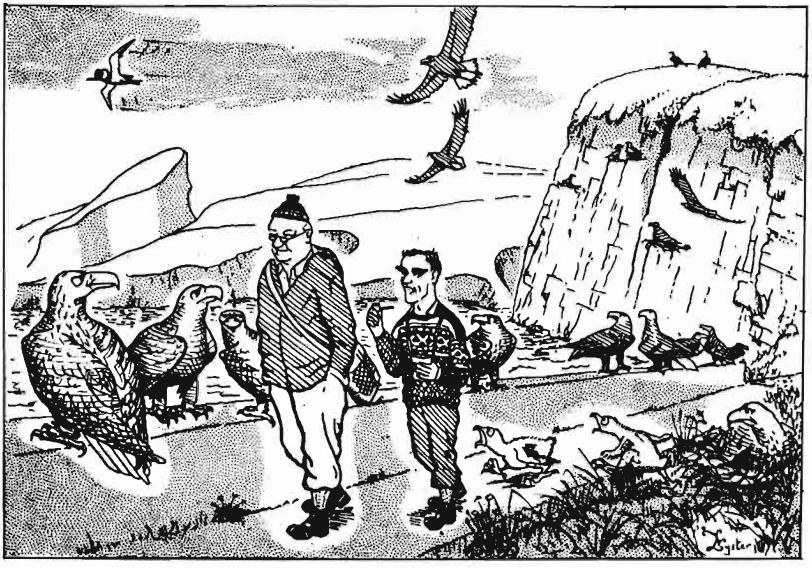
Editorial

New Fair Isle Bird Observatory. Plans of the new observatory buildings for Fair Isle have now been approved and are being put out to tender, with a view to carrying out the work this summer. The original £36,000 has already been promised, but costs have risen in the two years since that estimate was made, and further support is still urgently needed. The new buildings will provide a guarantee of the observatory's future and thus lend the most worthwhile and valuable support to the whole island community, which also benefits from the recent introduction of a charter air service and the consequent possibility of getting sick people to hospital in a matter of hours in any but the most severe storms.

Mrs Ruth Buller and the Border Committee of the World Wildlife Fund have arranged a Garden Fête for Saturday 5th July at the Holmes, St Boswells, Roxburghshire. Peter Scott will open it at 2.30 p.m. Attractions include a pony gymkhana, continuous filmshow, exhibition of bird photographs, and the usual stalls and sideshows, the star prize being a fortnight's free holiday for two on Fair Isle. It has been agreed by the WWF that the entire proceeds will be devoted to the Fair Isle Bird Observatory Building Fund.

The Holmes overlooks a beautiful stretch of the Tweed, and it is hoped that the fête will be supported by as many SOC members as possible. Donations of prizes for the tombola may be sent to 21 Regent Terrace, Edinburgh 7, where full details of the Fair Isle appeal may also be had.

Operation Seafarer. 1969 is census year in this detailed survey of British seabirds. Offers of help in any area will be welcomed, but this is an urgent appeal from the Organiser for help to fill the remaining gaps in Scotland—the north Mainland of Shetland, Hoy, Benbecula and South Uist, Raasay and Rona, the west mainland of Inverness-shire and Argyll, Tiree, Coll, Colonsay, Jura, Gigha and Arran. Observers are needed for these important areas **now**, for this summer. Please write to David Saunders, Tom the Keeper's, Marloes, Haverfordwest, Pembrokeshire.



"Perhaps we could reintroduce the Fulmar from St Kilda."

Sula bassana. Congratulations to David Merrie, SOC Council Member and Secretary of the new Stirling Branch, on winning the AA's *Drive* Photo-Safari competition for amateur photographers from an entry of 10,000. His prize is an East African safari for two as guests of the Kenyan Government. The prize-winning picture—reproduced in colour in the New Year issue of *Drive*—is a most satisfying group of Gannets on the Bass Rock.

Current literature. Recent papers of Scottish interest include:

Etude écologique des deux espèces de Fulmars, le Fulmar atlantique . . . et le Fulmar antarctique . . . J-L. Mougin, 1967. *Oiseau* 37: 57-103. Mainly Aberdeenshire/Adelie Land comparison.

Loch Leven, 1967. C. R. G. Campbell, 1968. *Wildfowl* (previously *Wildfowl Trust Annual Report*) 19: 159-160. Duck censuses etc.

A trial to investigate the reactions of sheep to goose droppings on grass. J. B. A. Rochard & J. Kear, 1968. *Wildfowl* 19: 117-119. Interesting Scottish study.

Barnacle Geese in the west of Scotland, 1957-1967. H. Boyd, 1968. *Wildfowl* 19: 96-107. Hebridean and other censuses.

Rough-legged Buzzards in Britain in the winter of 1966/67. R. E. Scott, 1968. *Brit. Birds* 61: 449-455.

Observations on the behaviour of the Great Skua or Bonxie *Catharacta skua skua* during the early fledging period in Shetland. R. D. Oades, 1968. *Seabird Bull.* 6: 22-34.

The distribution of the Raven in Britain and Ireland. D. T. Holyoak & D. A. Ratcliffe, 1968. *Bird Study* 15: 191-197. Breeding mapped by 10-km squares.

Bluethroat nesting in Scotland. J. J. D. Greenwood, 1968. *Brit. Birds* 61: 524-525.

Ornithological Atlas 1968-72

During the winter it has been possible to organise regional responsibility for the greater part of Scotland. Much thanks is due to those who have undertaken to organise coverage in their areas, and to Local Recorders for their part in this.

A list of areas and their organisers is given below. For practical reasons, this differs in some respects from the Scottish Bird Report list of Local Recorders, and it has not been possible either to adhere precisely to county boundaries or to delineate exactly the areas arranged. But neither residents nor summer visitors should find it difficult to decide which Area Organiser to contact.

Records from remote areas will be especially useful; but please do not assume that somebody else has already covered even quite well-known places of ornithological interest.

Ornithological Atlas Area Organisers

Shetland (except Fair Isle) R. J. Tulloch, Reafirth, Mid Yell, Shetland.

Fair Isle R. H. Dennis, Bird Observatory, Fair Isle, Shetland.

Orkney E. Balfour, Isbister House, Rendall, Orkney.

Outer Hebrides (except St Kilda) W. A. J. Cunningham, 10 Barony Square, Stornoway, Isle of Lewis.

Caithness D. M. Stark, 2 Harland Road, Castletown, Thurso, Caithness.

Sutherland, Ross-shire (except Black Isle), St Kilda, Skye, Inner Hebrides, Argyll, Bute C. G. Headlam, Foulis Mains, Evanton, Ross-shire.

Inverness-shire (within 18 miles of Inverness), Ross-shire (Black Isle only) Dr Maeve Rusk, Arniston, 51 Old Edinburgh Road, Inverness.

Inverness-shire (mainland more than 18 miles from Inverness) Hon. D. N. Weir, English Charlie's, Rothiemurchus, Aviemore, Inverness-shire.

E. Nairnshire, Morayshire Dr R. Richter, Gordonstoun School, Elgin, Moray.

Banffshire J. Edelsten, 14 South High Street, Portsoy, Banffshire.

Aberdeenshire, N. Kincardineshire N. Picozzi, Unit of Grouse and Moorland Ecology, Blackhall, Banchory, Kincardineshire. W. Murray, Culterty Field Station, Newburgh, Aberdeenshire.

S. Kincardineshire, Angus Organiser, C. M. Morrison, Dundee College of Education, Park Place, Dundee. Recorder, G. M. Crighton, 23 Church Street, Brechin, Angus.

Perthshire Miss V. M. Thom, 19 Braeside Gardens, Perth.

Kinross-shire J. H. Swan, Vane Farm Reserve, Kinross.

Isle of May Miss N. J. Gordon, Nature Conservancy, 12 Hope Terrace, Edinburgh 9.

Fife (east of A90) D. W. Oliver, 4 Lawview Cottages, Abercrombie, St Monance, Fife.

Stirling area (W. Fife, E. Stirlingshire, Clackmannanshire) Organiser, H. Robb, 27 Victoria Place, Stirling. Recorder, T. D. H. Merrie, West Faerwood, Stirling Road, Dollar, Clackmannanshire.

West Lothian Dr T. C. Smout, 19 South Gillsland Road, Edinburgh 9.

Midlothian, Forth Islands (except May) R. W. J. Smith, 33 Hunter Terrace, Loanhead, Midlothian.

East Lothian K. S. Macgregor, 16 Merchiston Avenue, Edinburgh 10.

Berwickshire, Roxburghshire, Selkirkshire (for 1969) D. Grant, Hawkslee, St Boswells, Roxburghshire.

Peeblesshire (records only) A. J. Smith, Glenview, Selkirk.

Glasgow area (Dunbartonshire, Renfrewshire, W. Stirlingshire, N. Lanarkshire) J. Mitchell, Dubhaniel, Gartocharn, Dunbartonshire (with W. Wild).

Argyll, Inner Hebrides, Bute See Sutherland (C. G. Headlam).

Ayrshire Dr M. E. Castle, 9 Finlas Avenue, Ayr.

Dumfriesshire J. G. Young, Benvannoch, Wellington Street, Glencaple, Dumfriesshire (with J. Maxwell).

Kirkcudbrightshire, Wigtownshire A. D. Watson, Barone, Dalry, Castle Douglas, Kirkcudbrightshire (with R. C. Dickson).

Scottish Coordinator C. G. Headlam, Foulis Mains, Evanton, Ross-shire.

Snowy Owls breeding in Shetland

R. J. TULLOCH

Shetland Representative, Royal Society for the Protection of Birds

(Plates 17-18)

Introduction and history

In 1967 a pair of Snowy Owls nested on the island of Fetlar, the first substantiated breeding of the species in the wild in the British Isles. During winter 1967/68 the five young owls scattered to other islands in Shetland. The old female disappeared, but the adult male stayed around Fetlar and in early spring was seen chasing a presumably local young male off the territory. An adult female, taken to be the same bird as in 1967, returned in late April 1968, and the pair bred successfully about 60 feet from last year's nest site, rearing three young.

On 11th December 1968 there were eight Snowy Owls in the Stakkaberg/Vord Hill area of Fetlar. Careful study suggested that they were the breeding pair and three 1968 young

birds together with a male and a female from the 1967 brood and an extra adult male (with two little dark 'ear' marks) that had been seen before. Another adult male was at the other end of Fetlar about this time and was evidently a ninth bird (since two adult males, neither of them the breeding bird, had been seen on 8th December).

An account of the 1967 breeding was published in *British Birds* (61: 119-132) and this paper follows a similar pattern, showing some differences between the two years and adding some new information. As before, it is based mainly on information extracted from the detailed logs kept by the wardens.

The Snowy Owl's normal breeding range is circumpolar, in the tundra zone beyond the tree limit, and within this range it is largely dependent upon the cyclic abundance of its principal food, the lemming. It has been noted that in poor lemming years Snowy Owls tend to wander widely in search of food, and it may be relevant to the Shetland breeding that there were irruptions of Snowy Owls in Scandinavia during the winters of 1960-63, immediately before the series of sightings in Shetland. In the four years 1963-66, in addition to those for Shetland, over 20 records were accepted by the *British Birds* Rarities Committee from 14 counties in Scotland and England, compared with only four in the previous five years. On the other hand, it may be noted that surprisingly large numbers of Snowy Owls have been imported into Britain in recent years, and some records, particularly the more southerly ones, may refer to escapes.

As could be expected from the geographical situation, many of the old records of Snowy Owls in Britain are from Shetland; indeed the first British record of the species is of a bird shot on the island of Unst in 1808 (MacGillivray 1840 *British Birds* 3: 412) or 1811. Saxby (*Birds of Shetland* 1874) says that Snowy Owls were particularly numerous in the mid 19th century, many being shot for collectors, and mentions hearsay instances of Snowy Owls seen on Unst with well fledged young. Venables & Venables (*Birds and Mammals of Shetland* 1955) noted that Snowy Owls had become exceedingly rare in Shetland by 1904, and they could only trace about six records in Shetland during the next half century.

In 1963 adult males were seen on Fetlar and on Ronas Hill on the Mainland of Shetland. In 1964 single birds, again adult males, were seen on many occasions between February and November; while in 1965 Snowy Owls were recorded in every month. Most of these records were of adult males, at least three individual birds, and mostly from the islands of Fetlar, Yell and Whalsay. During winter 1965/66 an adult female

was reported from Fetlar. During the following year she was seen on a number of occasions; while one, sometimes two, white male birds could often be found on Vord Hill or on Stakkaberg, the site of the following year's nest. In 1967 a pair of Snowy Owls nested on Fetlar; seven eggs were laid, six hatched, and five young were successfully reared.

Habitat and nest site

Fetlar is a little over 10,000 acres in extent, populated by a crofting community of around 90 people. The crofts are all along the south side of the island; the north side is now wholly uninhabited, although there are remains of former crofting townships at several places.

The owls nest territory was on the 400-foot rocky hill of Stakkaberg, about a mile from the sea to the north, and a mile from the nearest occupied croft to the south. The surrounding land is 'scattald', or common grazing land, and is mainly rough grass and heath with scattered outcrops of serpentine and boulder-strewn slopes. Shetland sheep and ponies roam freely over the area, and it is only infrequently visited by the crofters to drive sheep or to round-up ponies. It has been remarked that the area, with its terrain of rock and prostrate vegetation, is reminiscent of parts of the arctic tundra.

The nest site in 1967 was in a natural hollow at the top of the hill, the surrounding outcrops giving some small protection from the strong winds which are one of the characteristics of the Shetland climate. At the same time it was so placed that the sitting bird had a good view in nearly every direction. The male bird used the surrounding outcrops as lookout posts, so that invariably his warning call allowed the female to slip off before an intruder came into view of the nest.

In 1967 the nest was on the shoulder of a large rock slab, and was merely a scrape in a patch of grass filling a hollow in the rock. In 1968 the nest was placed some 60 feet away, and on a slightly lower elevation. It was not near the rocks, and as a result it was noticeably less effective in camouflaging the sitting bird.

Pre-nesting observations

Of the 1967 brood quite a lot was seen and heard during the winter. The first evidence of any young birds leaving the island was on 11th October when I saw a young female on Out Skerries; subsequently there were reports from Yell, Unst and the Mainland of Shetland, which judging by the descriptions of plumage and behaviour were almost certainly of young birds.

In Fetlar the young owls frequently came down to the

crofts in the dusk, and were sometimes seen chasing Starlings and other small birds around the stackyards. A bird which stayed near Mid Yell for a time when there was snow on the ground was surprised a number of times within a few yards of croft houses, usually sitting on a wall or haystack; it was seen in the moonlight, and occasionally even in daylight. One crofter complained that a Snowy Owl so scared his hens that they would not emerge from the shelter of a cabbage patch for most of the day.

Through watching the development of the young birds during the months after fledging we were able to decide that the 1967 brood consisted of three females and two males.

On 9th February 1968 I found four young birds—two males and two females—back near the old nest site, plus an adult male which was not the breeding bird.

On 22nd February I again visited the Stakkaberg area, and found three birds—an adult male which showed the characteristics of the 1967 bird and a first-year male and female. It was interesting to see that when I put up the young female she flew past the old male without getting any response, but that when the young male bird took flight the old male immediately gave chase and struck it with such force that he knocked it to the ground. They sat a few yards apart with the old bird 'glaring' with lowered head for a time, before the young one took off and was chased out of sight round the hill by the adult, which then flew back to the territory with more than a hint of display in its flight.

There were reports of presumed young females from Unst on 22nd April and Scalloway on 23rd. On 25th April the wardens for the coming season arrived, and on a visit to Stakkaberg we found only a young male and a young female; but on 29th a Fetlar crofter looking for ponies reported that she had seen "the old pair" on Stakkaberg. We had decided that it would be unwise to haunt the owl territory watching for the return of the old female, and the wardens were instructed to restrict observations to a point on the opposite side of the valley about half a mile away. I would take a maximum of two people quickly through the territory about once a week, my presence justified by the hope that I would be able to identify individual birds. On 9th May we found only the adult pair on the territory and saw the birds mating, and again on 15th saw mating but no suggestion that they had started laying.

In 1967 the estimated date of laying of the first egg was 3rd June. This is later than most arctic dates and in 1968 we expected laying to start earlier, but even so we were surprised to find on our next check on 21st May that the owl already

had four eggs. The observation hut was erected that evening with minimal disturbance, and a constant watch was maintained from then until after the young birds had flown.

Eggs and young

A clutch of six eggs was laid, compared with seven in 1967, and we were able to work out from hatching dates that the average incubation time was about 33 days, as in 1967. The hen bird was left undisturbed until the estimated hatching date of the first egg, when we found that she had already hatched two young and the third egg was chipping.

From an analysis of all our information it can now be seen that the first egg was probably laid on 12th May, three weeks earlier than in 1967 and in line with the average laying times given by Watson (*Ibis* 1957: 437-439), who found that most first eggs are laid between 10th and 22nd May over almost 30° of latitude in Canada, Alaska, Siberia and Scandinavia alike.

What had thrown our calculations out became apparent as hatching progressed, when we realised that there was a gap of four or five days between the third and fourth chicks. It now seems that the laying dates were: first egg 12th, second egg 13th or 14th, third egg 15th May, then a gap of four or five days, with the last three eggs laid on 20th, 22nd and 24th May. Incubation commencing with the first egg, as is usual with owls, meant that the first owlet was 12 days old when the last one hatched.

Gaps such as this in egg laying of Snowy Owls are known to occur, but it is of interest to consider the weather pattern over the laying period. A very cold northerly spell in early May had given way on 10th to mild rainy weather, which reverted on 14th to bitter dry northerly conditions, and these persisted until 21st. The bitter north winds, to which the nest was exposed, coincided almost exactly with the gap in egg laying.

I visited the nest on 24th June, when the eldest chick was ten days old, and found that the three oldest were obviously thriving well; but in the nest with them was one very small chick and one egg, and the other chick (the fourth) was lying about two feet from the nest. It was stiff, cold and wet, but still alive, and we decided that we would take it and attempt to revive it. After two days of intensive care it was feeding well and seemingly fully recovered, and we returned it to the nest.

However, when the wardens went to the nest on the 26th to return this chick, they found that the fifth one was very weak, and the sixth, which had been chipping two days before, had disappeared. The weak chick was removed, but it

died during the night; it was found to be bruised and scratched, presumably by the oldest three. It would appear that competition from the big ones was just too much, and that the small one had not been fed properly. Certainly there did not seem to be any lack of available food about the nest.

During the following three days it was possible to see that the fourth chick was being fed, and it seemed to be thriving well, but on 30th June, a day of driving rain, the head of this smallest chick could not be seen begging with the rest. A check was made, and it was found to be very weak, with gummed-up eyes and encrusted vent. It was left in the nest while I was contacted by telephone and we decided to remove it, but on their return the wardens found it lying outside the nest dead.

The oldest three were strong and vigorous and suffered no setbacks, and by the time they were 18 days old they were starting to wander away from the nest and squat among the nearby rocks, where their grey down made them very difficult to see. After the 25th day they had left the nest for good, and were only occasionally brooded by the female in wet weather. They wandered farther from the nest day by day in a generally easterly direction, as they did last year, and while this was in the opposite direction to the observation post it was also to an area which probably offered the best concealment.

In 1967 the first observed attempt at flight was at 35 days (assuming it was the oldest chick) and the first sustained flight at 43 days. In 1968 the dates were very similar, at 37 and 44 days respectively; as in 1967, all the young were strong on the wing at 50 days.

When first hatched the chicks were covered in whitish down and could do little more than cheep faintly and open their beaks for food. After about four days they could hold their swaying heads up for a short while, but only about the ninth day were their eyes fully open. Shortly after this they acquired their second down, which was dark grey-brown in colour, and they could preen and stagger about the nest. By about 30 days the whitish primaries and tail feathers were visibly sprouting. The irides were pale grey at first, gradually developing a yellow tint, and by 23 days were the same golden yellow as those of the adults.

Because the young were never seen together at close quarters after they left the nest, and because they still had quite a lot of down when they flew, we could not be certain of their sex until they were about ten weeks old and had lost their downy 'ruffs'. It was then evident that there were, as we had suspected, two females and one male.

The two young females were obviously bigger, when they were all seen together, and their first-winter plumage was quite striking. The whole of the upperparts, crown and nape, flanks and lower breast is white, closely barred blackish-brown, and the face and neck, extending in a deep V down the front, is pure white. The young males, apart from being smaller, are always neater, more compact-looking, with rounder heads, and much less contrasty in plumage. While the distribution of barring is about the same as on the females, it is browner and less distinct. From a distance this has the effect of giving the young males a fawn appearance, while young females look grey.

Food, feeding and hunting

As in 1967, rabbits made up the main bulk of the owls' diet. From the time regular watches were started to the hatching of the first chick, a period of 23 days, 25 rabbits were brought to the sitting female, and no other prey species were seen. From hatching until about 19th July, a period of 34 days (after which figures were unreliable because the young were often out of sight, and the distance made accurate identification impossible), at least 102 items of prey were brought to the nest or to the young after they had left it, consisting of 59 rabbits (making 84 in all), 23 Oystercatcher fledglings, 3 Curlew/Whimbrel fledglings, a Lapwing fledgling, an Arctic Skua fledgling, 4 unidentified birds and 11 other unidentified items. These figures are probably incomplete, because, during incubation and the fledging period, hill fog and mist often made observation impossible, and prey may have been brought to the nest or young at these times.

Most of the hunting was done in the evening or early morning. Of the first 100 prey items brought to the young, 91% were brought between 6 pm and 6 am, and 60% of these were between 9 pm and 3 am. Hunting was almost entirely by the male; only on three occasions when the young were well grown was the female seen to take prey (a rabbit, an Oystercatcher fledgling and one unidentified). The actual capture of prey was seldom seen, partly because it was usually at some distance from the observation post and partly because it was so often during the darkest part of the night. It was a fairly straightforward performance. The male owl usually sat on an elevation (sometimes on a fence post, sometimes on flat open ground) and watched for something to move. When it did he would take off and fly, usually fairly low, and land with his talons on the prey, which had usually assumed a frozen attitude. If the prey was a rabbit, the owl would just stand on it, perhaps occasionally biting at it, until it had stopped kicking, when it would be carried—one foot

gripping the head or neck and the other the back—to be presented to the female on the nest. If the prey was small, such as a bird or small rabbit, it would be carried in one foot, and sometimes for short distances in the beak.

Behaviour at nest

During incubation the female left the nest about four to six times in the 24 hours, usually for less than four minutes at a time. She would usually go off to feed in the evening and early morning, and often about midday to preen, stretch, void, and put up pellets; mating often took place during these excursions.

When the male brought food to the female he would usually land a few feet from the nest and transfer the food to his bill, walking the last bit to offer the prey to his mate, who would either take it straight away or refuse altogether. One entry in the logbook tells how the male came in with a small black rabbit, which the female refused, turning her head resolutely away when he rubbed her face with it (this was usual); so he flew off again and proceeded to eat the rabbit himself, whereupon the female poked underneath herself and produced a larger grey rabbit, which she ate. Food refused by the female was invariably taken away and either eaten by the male or left at one of a number of 'food depots' some distance from the nest. This could be an adaptation with the function of minimising the attraction of the nest site to predators.

During incubation, if the prey brought in was small, such as a young rabbit or bird, the female would often swallow it whole without leaving the nest, but if it was a large rabbit she would usually fly off about 50 yards to tear it up and eat all or part of it. The female, on the nest, was twice seen to attempt to eat a rabbit which proved to be too big for her. She gulped and strained but could not get the hind legs to disappear, and after a while brought a foot forward grasped the legs of the rabbit, and literally pulled it out again.

The young were fed at first on tiny pieces of prey, but after a while would greedily gulp as large a portion as they could force down, and one, probably the eldest, which was 17 days old, was seen to swallow a Curlew/Whimbrel fledgling whole. By the time they were three weeks old the young were capable of pulling pieces off an open rabbit carcase but were still not able to get through the skin.

Only the female fed the young, although when the chicks were older they would often rush the male and take prey from him on his arrival. On one occasion when the young were still in the nest the male arrived while the female was absent and attempted to feed the young. The log records that

the female "came rushing back and snatched the rabbit from him," proceeding to feed the young herself. When the young were scattered and nearly ready to fly, it was still the usual procedure for the male to be met by the female, who took the prey to one or other of the young.

On one occasion the wardens were looking after two waif gull chicks in the observation post and had fed them on part of a rabbit and thrown out the rest. The male Snowy Owl, probably attracted by Hooded Crows which were investigating the scraps, came across and took away the rabbit remains and presented them to the female on the nest.

After the young had been flying about a week, the adult male damaged a wing and was kept in the bothy for three weeks, as described below. During this time the female did all the hunting for food.

In 1967 the owls were not seen either to drink or to bathe, but in 1968 the observation post was situated within sight of a small pool of water, and both male and female owls were seen to drink and to bathe vigorously on a number of occasions.

Relations with other birds and animals

A number of other bird species breed in the Stakkaberg area, including Golden Plover, Whimbrel, Oystercatcher, Ringed Plover, Wheatear, Meadow Pipit, Starling and Skylark, with Eider, Curlew, Snipe, Dunlin, Lapwing and Redshank on the lower ground towards the sea, and Great and Arctic Skuas, and Great and Lesser Black-backed Gulls on the side of Vord Hill half a mile or so from the Snowy Owls' nest.

Except for the fledglings taken for food, all these species were normally ignored by the owls, although Great Blackbacks were sometimes challenged and driven off when they became too interested in the nest area, and an almost constant but unsuccessful war was waged against a group of Hooded Crows which continually taunted and annoyed the owls, thieving food from the food depots and the young owls and generally making a nuisance of themselves. The owls were obviously no match for the cunning of the Crows, and were consistently outwitted by Hoodies acting in concert.

Most of the birds breeding in the district, plus passing birds such as Fulmar, Common/Arctic Terns, Raven and Merlin, mobbed the owls at one time or another, probably the most persistent being Great Blackbacks, Hooded Crows, Arctic Skuas and Oystercatchers. Mostly the attackers were ignored, but persistent and close dives by Arctic Skuas, terns and gulls sometimes made the male owl move to a more sheltered position in the lee of a rock. The sitting female was much less

frequently mobbed, but persistent attacks on her would sometimes spur the male into driving off the intruder.

Of much greater concern to both owls were sheep or ponies grazing near to the nest or young. Any approach within 20 yards or so was greeted with barking by the male, and by 'mantling' (lifting body feathers to increase apparent size) by the female on the nest. An approach closer than 10-12 yards would cause the female to leave the nest and the male to attack the intruders. Ponies were not normally struck, and in any case were usually driven off by the wardens before they got too close, but sheep were often struck and their wool torn out by both birds, though usually by the male; this invariably made the animals run off, when the birds would cease their attacks and the female would return to the nest.

Rabbits showed no appreciation of the danger of the owls whatever, and would often graze, unmolested, quite near the nest. Quite a number of black mutant rabbits lived in the area and these were often taken by the owls, possibly because their colour offered less chance of concealment.

There are few other mammals on Fetlar except hedgehogs and field and house mice, so there is little danger from ground predators such as stoats and foxes, which can be a menace in their normal breeding grounds. Otters are seen occasionally, but they rarely leave the coast except to follow a stream, and they are very unlikely to visit the top of the hill.

Voice, display and reactions to man

Compared with 1967 the reactions of the owls to our presence in the nesting territory differed a little. They were a bit more tolerant of the inevitable occasional movement or noise from the observation post, and indeed on one occasion the female stayed on the nest while some essential repairs were done on the roof of the hut, including nailing down felt. The reactions of the male differed in that whereas in 1967 he invariably approached, barked, and dive-bombed intruders, in 1968 he was more 'careless' and sometimes did not even notice an approach to the nest until he heard the female 'squealing' from the rock she had flown to. On the other hand, when he did decide to attack he was bolder and prepared to press home even to the point of striking.

This apparent increase in confidence also showed in the male's hooting. This seemingly is mainly a territorial claim, and Watson (*loc. cit.*) records male birds in adjoining territories in Baffin Island hooting, apparently at each other, for long periods.

In 1968 the male hooted often, sometimes at sheep or ponies wandering within his territory, sometimes apparently at other

birds, but also at humans, where in 1967 the reaction would have been aggressive, or worried, barking.

When the young owls were still in the nest both parents would become very agitated if anyone approached the nest site. The female would go into a distraction display reminiscent of Arctic Skua, thrashing the ground with her wings and making squealing noises, while the male would bark, a hoarse *ergh, ergh, ergh, ergh* repeated at intervals either while flying round overhead or sitting on a nearby rock 'glowering'. In less intense moments the female also would sit on a rock and bark in a higher pitched but similar way.

The female continued to react to humans strongly even well after the young had flown, but the male lost interest before the young were on the wing, and sometimes would not react at all. The young birds' voices developed from a weak cheeping in the nest to an intense long-drawn squeal *squeeeeeeoooooo*, audible at least a mile away in calm conditions, and probably used as a food-begging call.

On 28th August, when the young had been flying for about a month, I found the old female with the three youngsters on the edge of the territory. I was able to approach to about 50 yards, when the old female started barking, and this was taken up by first one of the young females and then the other, a squealing sort of *eergh, eergh, eergh, eergh,* obviously directed at me, and with the same tone as the parent. The young male watched but did not call, and the old male was not in evidence, having been released only a day or two before.

On 9th August, about a week after the young were all on the wing, a Snowy Owl had been found sittng in a field on the east side of Fetlar, about four miles from the nest area, apparently unable to fly. When the wardens went to pick it up they found that it was an adult male which seemed to have a weak left wing; it was thin and showed little reaction to being handled. We suspected it was the male from Stakkaberg, and this proved to be the case.

One of the rooms in the wardens' bothy was cleared and perches provided (rocks on the floor and a pole across one corner), and the bird, after an examination which showed no physical damage, was given the run of the room. After being force-fed for two days on bits of rabbit, the owl thereafter fed himself on rabbits put into the room. After about two weeks he seemed to have recovered both strength and spirit, was flying up onto the perch readily, and was less amenable to handling. At this time however he developed an eye infection, and it was decided to keep him indoors until it had cleared.

He was a remarkably good patient, suffering the application of the prescribed eyedrops twice daily without any struggle, and in fact he was surprisingly docile throughout his convalescence. He made no attempts to attack, and would allow himself to be stroked while he sat on his perch. Saxby related how he had tried to rehabilitate injured Snowy Owls in Unst, and said that he could never understand why they had been called "the amiable owl" as he found them fierce and untameable. When released, the owl flew strongly back to the nest territory, but, though he stayed in the vicinity, he was never seen to take any further interest in the family, the female alone continuing to feed and guard the young.

Protection arrangements

In April 1968 the Secretary of State for Scotland granted a Sanctuary Order covering something over 1600 acres surrounding the Snowy Owls' nest. This area is managed by the Royal Society for the Protection of Birds, which had decided to organise a full-scale watch on the nest, as it did in 1967, should the birds return to breed in 1968.

The same disused croft house was made available, and certain repairs were done and amenities provided for the comfort of the watchers. Five people were employed for the season, four watchers and a cook-caterer, it being felt this was the minimum number which could cope with a round-the-clock watch, particularly as the duties included attending to the considerable number of visitors expected, when two people were needed on the hill—one to watch the owls and another to watch the people.

It was also found desirable to have a second hut alongside the first, with a large pair of tripod-mounted binoculars installed for the use of visitors. The wardens marked a suggested path up to the observation post, with white paint here and there on stones, and with more definite controls near the hut, so that people would stay on a path which could not be seen either by the sitting female owl or from any of the male owl's lookout posts. The system worked well, and by the time the young owls had flown they had been seen by over 600 people.

Our view of the sitting bird from the observation post was very good, slightly downwards and across a hollow to the nest about 150 yards away; through the tripod binoculars it was possible to see bluebottles walking around the nest. A great advantage from the protection angle is that in this latitude there is no real darkness during the critical incubation period; the birds' every movement could be watched right round the clock, except in misty conditions.

Local reaction

We were very fortunate in being able to enjoy full help and cooperation from everyone on the island. Lady Nicolson, proprietrix of the reserve, was most cooperative and sympathetic, even offering to buy any food necessary for the injured owl. The crofters transported our sectional huts up to the reserve on tractors, looked-on with amused tolerance as eager young wardens chased migrant birds through their crofts, and offered very acceptable relief from the rather spartan conditions in the bothy by inviting them to spend an evening with them, which could even include the luxury of a hot bath.

It must not be thought that Fetlar people looked upon this invasion of birdwatchers in the sceptical way people in remote communities have been known to see any activity which may be considered less than practical. Fetlar has long been aware and proud of its wealth of bird, animal, and plant life, and not a few of the islanders are extremely good practical naturalists.

Acknowledgments

Without the painstaking log-keeping of the wardens, much of the information in this paper would not have been available, and I am indebted to the four full-time wardens, Timothy Greenwood, Torquil Johnson-Ferguson, Iain Robertson and Martin Rohd-Thomson; also to Murdo Macdonald, who came later in the season; and to the very important person who kept the 'inner men' happy, Miss Sue Stewart. A number of visitors also took spells in the observation hut and added much useful information.

The Snowy Owls themselves owe much to the RSPB for financing and organising their welfare, and to the proprietors and people of Fetlar for the sympathy and help without which the whole operation would have been impossible.

Summary

Following a surge of records of Snowy Owls in Britain in 1963-66 a pair bred on Fetlar in 1967 and 1968—the first undoubted records of breeding in Britain. In 1967 five out of six chicks fledged from seven eggs, and most remained in Shetland during the winter. In 1968 five and probably all six eggs hatched, but the three smallest chicks died, perhaps partly on account of a gap of 4-5 days between the third and fourth.

History, habitat, behaviour, breeding biology, food, hunting, plumage, and relations with man and other species are discussed, with special emphasis on 1968.

The first egg, about 12th May, was three weeks earlier than in 1967. Incubation, starting with the first egg, took 33 days. Chicks began to wander from the nest at 18 days and had abandoned it a week later. Sustained flight was recorded at 44 days and all were strong on the /ing at 50 days.

Rabbits, particularly, and wader fledglings were the main food, the

male doing most of the hunting but the female taking over when he was injured and the young were already on the wing.

(Numerous reports of Snowy Owls in Scotland from 1963 onwards are detailed and summarised in the annual reports and supplements of the *British Birds* Rarities Committee, thus: 1963 (57: 271), 1964 (58: 363; 59: 301), 1965 (59: 291; 60: 334), 1966 (60: 322; 61: 362), 1967 (61: 347). Some 1968 records have probably still to be submitted and no summary is attempted here. It is known also that not every occurrence in the previous five years has been recorded. Only some of the 1964 records and hardly any of the later ones have been published in detail in *Scottish Birds*. Some account may however be published later of the intermittent Aberdeen/Banff/Inverness summer records from the Cairngorms (1963-66) and of the wintering birds at a locality in the Moray Basin (1964/65, 1965/66 and autumn 1966). Apart from Shetland, Orkney and the counties mentioned, there have been isolated winter or spring records of Snowy Owls since 1963 from Midlothian, Angus, Caithness and St Kilda.—ED.)

Isle of May Bird Observatory and Field Station Report for 1968

Prepared for the Observatory Committee by
NANCY J. GORDON, *Honorary Secretary*

During 1968 the Observatory was manned for a total of 199 days between 31st March and 4th November. The number of observer-nights was 681. Coverage of spring migration was almost complete, and the Observatory was also manned throughout the summer, but unfortunately some good days were missed during five short gaps in the autumn.

Spring migration was fairly light, with only one good spell, in early May. As elsewhere in Britain, autumn movements started very early, and the season was full of variety, though without any spectacular large falls. New species recorded were two *Richard's Pipits *Anthus novaeseelandiae*, one, which was trapped, on 17th-18th September, the other on 19th-21st September, and a *Citrine Wagtail *Motacilla citreola* on 20th September. Other additions to the ringing list were the island's second Radde's Warbler and a Grey Wagtail. Other interesting records included Firecrest, Nightingale and Yellow-breasted Bunting.

*Subject to confirmation by the Rarities Committee

Spring

There were observers on the island every day from 31st March onwards except 9th April.

April. The season started with cold weather, northerly winds and snow showers, but despite this the first observers were able to record some migration and logged 3 Wheatears passing at 1700 hrs on 31st March (daily numbers remained low until the middle of April). Ten Fieldfares arrived on 1st April, with a Woodcock and 2 Goldfinches, preceding a fair influx of finches on 2nd April, with 3 more Goldfinches, 50 Linnets and 50 Greenfinches, as well as a Water Rail. No fewer than 20 Goldfinches were moving NW on 3rd April, and thereafter up to 5 on each of 12 days until 2nd May. This is a record movement of this species on the May; prior to 1967 (with several occurrences) there had been less than one bird per year. Also on 3rd April a Merlin was seen at mid-day; and a crake (possibly Spotted) was heard and seen briefly near midnight, both this day and on 4th April, when a Shore Lark and a *Phylloscopus* warbler were seen. After a quiet week a spell of easterly weather started on the 10th, and lasted until 22nd April. During these 12 days observers saw some movement of Blackbirds (up to 50 daily), Song Thrushes (30 on 19th), Wrens (20 on 16th), Fieldfares (up to 25 daily), Wheatears (up to 60 daily), Goldcrests (15 on 21st), Linnets (up to 20 daily) and Meadow Pipits (up to 50 daily). On 16th April the first Whitethroat and 4 Chiffchaffs arrived, and also the first Ring Ouzel of the spring. These were followed next day by the first Swallow and Sand Martin and a very early Yellow Wagtail, and on 18th April by the only two Mistle Thrushes of the spring, with the first (and very early) Pied Flycatcher, first Willow Warbler, Redstarts and a Green Sandpiper. For the next four days migrants arrived overnight and during the day; the first Grasshopper Warbler on 19th, and the first Blackcap on 21st, when Willow Warblers were seen in greater strength (40, increasing to 150 on 22nd); also on 22nd the first Whinchats (5) and the first House Martin, with Swallows and Sand Martins reaching their spring peak (25 each). With mainly west winds there was only a small trickle of warblers and hirundines over the next six days, though records of note were 10 Rooks on 23rd, a Yellow Wagtail, the first Tree Pipit and the first two Lesser Whitethroats on 24th. East winds and fog overnight brought a new influx of Whinchats and Whitethroats on 29th April, the first Sedge Warbler, and a Nightingale.

May-June. Thanks to two spells of good murky weather, the Isle of May fared better than most other observatories during May. After a few quiet days, then a turn to east winds and poor visibility, the nights of the 4th and 5th saw

large arrivals of continental migrants, with up to 100 Redstarts, 70 Wheatears, 30 Ring Ouzels, 30 Fieldfares, 25 Whitethroats, 10 Whinchats, 14 Wrynecks, 3 Bluethroats, a Greenshank, a Corncrake, a Red-backed Shrike, a Grasshopper Warbler and a Shore Lark. Some of these birds stayed on the island for several days, and the pattern of movement gradually reverted to the more normal trickle of warblers, flycatchers, Redstarts and Whinchats, and a decrease in thrushes by the middle of the month. There was a small passage of Common/Arctic and Sandwich Terns between 16th and 20th May. Numbers of migrants remained low despite the easterly winds, and not until the 22nd was there some variety, with the arrival of 4 Lesser Whitethroats, 2 Chiffchaffs and a Bluethroat. Three more Bluethroats and 3 Cuckoos arrived next day. The last big influx of spring was on 25th May, when 16 Tree Sparrows, 40 Whitethroats, 15 Sedge Warblers, 10 Garden Warblers and 2 *flava* Wagtails arrived during the morning. More Tree Sparrows were seen before the end of the month, also a late Brambling (on 26th), another Cuckoo, 2 Goldfinches, and 25 Spotted Flycatchers (on 28th). A Turtle Dove turned up on 24th May, joined by another on the 30th. The spring migrants were on the move a bit longer than usual this season, and during the first days of June while east winds prevailed a few Whitethroats, a Whinchat, 3 Garden Warblers, 2 Pied and 2 Spotted Flycatchers were recorded, as well as 3 late Fieldfares. Even later stragglers included a Sedge Warbler (on 7th), a Spotted Flycatcher, 3 Greenfinches and a Willow Warbler on 13th, a Cuckoo and another Willow Warbler on 17th, and a final Willow Warbler on 23rd, when a Black Guillemot was also seen. The greatest surprise of the month was a Firecrest, trapped on 11th June, which stayed until the 13th. There were many fewer Chaffinches and Robins amongst the spring migrants this season, and not a single Yellowhammer or Grey Wagtail was seen.

Autumn

Observers were in residence from late July until 19th August; 23rd August-14th September; 16th September-3rd October; 5th-15th October; 19th-27th October; and 29th October-4th November.

Late July and August. As elsewhere in Britain the autumn migrants were off to a good early start due to the long spell of anticyclonic weather and light east winds. First arrivals on the May were a Whinchat and 2 Wheatears on 25th July, a Willow Warbler on 27th, a Spotted Flycatcher and a Whimbrel on 28th. August started with an unusually early arrival of Fieldfares, many of them first-year birds. This movement

(which was witnessed at other observatories) continued steadily throughout the month, numbers increasing to 60 or 70 daily. Meanwhile warblers and flycatchers appeared in small numbers, but no large falls occurred until the end of the month. Species worthy of note were two early Pied Flycatchers on 3rd and an early Redstart on 5th August, a Knot on 10th August, the first Garden and Sedge Warblers on 13th, and 2 Wrynecks on 24th, (only 5 Sedge Warblers were seen this autumn). Although the northern observatories were inundated with migrants several times during the month, it was not until a haar developed at midday on the 26th that the May had a share in this movement, and observers recorded a Yellow-breasted Bunting, and a Red-backed Shrike along with Fieldfares, Willow Warblers and Wheatears. There was more movement over the next few days, with a Great Spotted Woodpecker, 2 Ruff and the first Lesser Whitethroat on the 27th, 2 early Redwings, 2 Goldcrests and no less than 4 Ortolan Buntings on the 28th. During the same few days some passage of Great and Arctic Skuas was noted, and a Pomarine Skua was seen on the 30th (the first record for 11 years). Only one Skylark was seen in August, and migrant waders were scarcer than usual.

September. Alternating spells of unsettled and calm weather sustained both the odd falls and steady trickles of migrants, especially Swallows (up to 300 on the 1st, 13th and 19th), martins and Meadow Pipits (up to 500 daily). Six Barred Warblers and a Red-breasted Flycatcher arrived on 2nd, a Treecreeper and a Wood Warbler on 7th, a *flava* Wagtail on 8th, 18 Siskins on 11th, a Bluethroat and another Red-breasted Flycatcher on 12th, 3 Grey Wagtails on 13th, the first Snow Bunting and 2 Bluethroats on 17th. Wheatear numbers were up to 35 daily early in the month but dropped off later. Up to 100 Fieldfares were seen daily until 23rd, and Song Thrush and Redwing numbers increased towards the end of the month, as did Ring Ouzels (14 on 27th). The highlights of the month were two *Richard's Pipits (17th-21st) and a *Citrine Wagtail (20th) during a week of good migration weather. On 18th and 19th there was some passage of Swallows, martins, pipits and *alba* Wagtails, and a Greenshank was seen on the 20th. A small passage of Red-throated Divers was noted on 20th-22nd. Bad weather overnight and during the day of 23rd September brought two influxes of Fieldfares and Redwings, with 3 Grey Wagtails, 6 Blackcaps, 6 Garden Warblers and 6 Goldcrests. The first noticeable movement of Skylarks was on the 25th. Westerly winds prevailed until the end of the month, with very little movement (though 3 Whimbrel and a Greenshank were seen on the 26th, and 9 Redpolls on 30th). However, sea-watches produced a Sooty

Shearwater, 5 Scaup, an Arctic Skua and a Black Guillemot in winter plumage on 26th, a Great Skua on 29th and a Velvet Scoter and 63 Pink-footed Geese on 30th.

October. The month began with some tern passage, and on the 2nd a Curlew Sandpiper was seen, as well as single Red-throated and Great Northern Divers; also 3 Grey Wagtails arrived overnight, the fourth time this autumn that as many as 3 had been seen in one day. Little happened over the next few days, except that on the 7th the year's only Stonechat was recorded, in company with a Spotted Redshank. Despite mainly west winds there was much visible migration on 8th-10th October (up to 460 Fieldfares, 100 Redwings and 200 Blackbirds daily). One of the few Woodcocks of the autumn arrived on 8th, also a Northern Great Spotted Woodpecker, a Great Grey Shrike and a Peregrine. Small numbers of warblers and finches were passing through, and a Yellow-browed Warbler turned up on the 9th. Numbers of Bramblings reached 190 on the 10th, and the last terns (7 Sandwich) were seen. Strong winds hindered both migrants and observers for the next few days, and the next influx was sometime during the gap in observer cover, probably on 19th October, and included a Sparrowhawk, a Merlin, 2 Black Redstarts and many thrushes. On the 21st another Northern Great Spotted Woodpecker arrived (and stayed into November). On the 22nd the island's second Radde's Warbler was trapped, the last Swallow and a late last Whimbrel passed through, and 12 Redpolls arrived overnight. A last late Garden Warbler was seen on the 23rd, along with 9 *alba* Wagtails, a Goldfinch, 4 Tree Sparrows and the only Mistle Thrush of the autumn. Passage of Blackbirds (up to 200), Fieldfares (up to 400), Redwings (up to 200), Song Thrushes (up to 50) and Bramblings (up to 34) continued throughout the next 3 days, and a Merlin was seen on the 26th. After this there was very little movement, due to severe northeasterly gales from 31st October to 3rd November, but by 4th, when the winds had dropped, coastal movement of Skylarks, Snow Buntings, Blackbirds and pipits was resumed.

Unusual occurrences

Great Northern Diver. One, 2nd October. Seventh record. First for 9 years.
Shoveler. One each, 12th and 20th September. Only fourth year of occurrence.
Whimbrel. One, 22nd October. Latest autumn record.
Greenshank. One 5th-6th May. First spring record.
Curlew Sandpiper. One, 2nd October. Fifth record.
Pomarine Skua. One each, 30th August and 5th September. Sixth year of occurrence.
Wryneck. Fourteen, 6th-7th May. Largest movement recorded.
Shore Lark. One, 4th-8th April. Fourth and earliest spring record.
Fieldfare. Autumn passage started 2nd August, exceptionally early.

Nightingale. One, 29th-30th April. Ninth year of occurrence.
Radde's Warbler. One, 22nd October. Second record.
Firecrest. One, 11th-13th June. Fourth and only spring or summer record.
***Richard's Pipit.** One each, 17th-18th and 19th-21st September. First records.
***Citrine Wagtail.** One, 20th September. First record.
Goldfinch. Largest number recorded (up to 20 on 13 days in April).
Yellow-breasted Bunting. One, 26th August. Sixth record.

Note. The Tawny Pipit record for 3rd November 1967 was not accepted by the Rarities Committee.

Breeding populations

Research was continued on the gull colonies by Jasper Parsons of Durham University, who estimated that the numbers of Herring and Lesser Black-backed Gulls are still increasing (last estimate 11,000 and 900 pairs respectively in 1967). Great Black-backed Gulls bred for the seventh successive year, though only one chick survived from a total of 3 nests. Numbers of Eider Duck appeared to be less than 1967's total of 58 pairs nesting, but hatching success in 1968 was better, probably 30%-40%. Shag, Guillemot, Razorbill and Puffin numbers all apparently increased slightly (the Shag population seemed unaffected by the mussel poisoning which caused heavy mortality further south in May). About 30 pairs of Fulmars bred, rather fewer than in 1967. Mallard (2 pairs) bred for the first time, several chicks hatched, but none survived. One pair each of Swallows and Blackbirds nested, and at least four pairs of Dunnocks. A pair of Linnets attempted to nest (the first for 8 years) but the nest and eggs were found deserted in the top lighthouse garden.

Ringing and recoveries

7061 birds of 64 species were ringed, slightly fewer than in 1967. As in the previous two years of gull research work, well over half the total consists of Herring Gulls (4884), and there was also a record total of Shags (774 ringed). Another record total was Ring Ouzel (12), and higher totals than usual included Meadow Pipit (70), Fieldfare (35), Siskin (26), Wryneck (10) and Bluethroat (6). Additions to the ringed species were *Richard's Pipit, Radde's Warbler and Grey Wagtail. For the second time only, a Firecrest and a House Martin were on the ringing list. No Kittiwakes, Razorbills or Guillemots were ringed, and very few Robins, Dunnocks, Greenfinches or Chaffinches (2 only).

The total of 260 recoveries included 180 Herring Gulls, 15 Lesser Black-backed Gulls and 42 Shags (13 of which met their fate off the NE coast of England during the summer). The pre-fledging mortality of ringed Herring Gulls (19%) was double that of the previous two years—attributed to a combination of starvation and salmonella disease.

*Subject to confirmation by the Rarities Committee

The foreign recoveries and controls are listed below:

		Ringed	Recovered	
Lesser Black-backed Gull	Pull	21. 7.67	Bouskoura, nr. Casablanca, Morocco	16. 1.68
Lesser Black-backed Gull	Pull	21. 7.67	Rabat, Morocco	10. 1.68
Lesser Black-backed Gull	Pull	21. 7.67	Chipiona/Rota, Cadiz, Spain	15. 1.68
Lesser Black-backed Gull	Pull	21. 7.67	Torremolinos, Malaga, Spain	15. 2.68
Lesser Black-backed Gull	Pull	1. 7.67	Ayamonte, Huelva, Spain	15. 3.68
Lesser Black-backed Gull	Pull	8. 7.66	Biscay, 14 m. N of Fuentarrabia, Spain	28. 2.68
Lesser Black-backed Gull	Pull	21. 7.67	Palos de la Frontera, Huelva, Spain	25. 8.68
Lesser Black-backed Gull	Pull	9. 7.66	La Teste de Buch, Gironde, France	5. 1.68
Herring Gull	Pull	18. 6.66	St Gilles-sur-Vie, Vendee, France	1.10.67
Herring Gull	Pull	29. 6.67	Fouras, Charente-Maritime, France	6. 7.68
Herring Gull	Pull	2 .7.67	Whiddy Is., Bantry Bay, Eire	13. 8.68
Blackbird	Ad	28.10.64	Vildbjerg, Jutland, Denmark	12. 3.68
Blackbird	Ad	20.11.66	De Cocksdorp, Texel, Holland	12. 1.68
Blackbird	FG	7.10.65	Sandnessjøen, Nordland, Norway	12. 9.68
Blackbird	1st Y	1.11.67	Saedding, Esbjerg, Denmark	24.10.68
Garden Warbler	FG	14. 8.65	Nr. Lisbon, Portugal	8. 8.68
Whitethroat	Ad	15. 5.65	Saugon, Gironde, France	—. 7.67
Goldcrest	FG	24. 9.66	Katwijk-aan-Zee, Netherlands	19. 4.68
Dunnock	FG	2.10.65	Herve, Liège, Belgium	11.11.67
Chaffinch	Ad	14.10.66	Stranda, Norway	18. 4.68
Brambling	FG	13.10.62	Nr. Slins, Liège, Belgium	11.11.67

A Long-eared Owl recovery from Doncaster was a first for the island. A Fulmar and a Wheatear ringed on Fair Isle were recovered (dead and alive respectively) on the May.

Other observations

No changes were noticed in the population of grey seals. Rabbits were even more numerous than usual, but towards the end of the season many were in poor condition and a number dying, though not from myxomatosis; some were found to have diseased livers (coccidiosis).

It was noted that the vegetation and soil were continuing to suffer from the pressure of gulls, Puffins and rabbits. By the end of the year there were quite large areas of soil devoid of vegetation and heavily undermined by burrows—a scene resembling parts of the Farne Islands.

Miss C. Jangoux from Belguim who stayed at the Observatory in July kindly presented a copy of E. A. Armstrong's

Bird Display and Behaviour to the library, which also received copies of Annual Reports from 17 other Observatories (21 reprints of the Isle of May's 1967 Report were distributed).

The Committee is grateful to those observers who helped repair traps and carried out other tasks at the Low Light during the season; it also wishes to thank the Principal Keeper and his staff, and the skippers of the *Breadwinner* for all their help and cooperation during the season. The Observatory regretted saying farewell to Mr Crawford when he left the island in the autumn, but was pleased to welcome Mr Magnus Pearson in his place as Principal Keeper.

The food of the Shag in Loch Ewe, Ross-shire

DEREK MILLS

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Introduction

A detailed investigation into the ecology of flatfish, particularly juvenile plaice *Pleuronectes platessa,* is being made by the Marine Laboratory, Aberdeen, at Firemore Bay on the west shore of Loch Ewe, a sea loch on the west coast of Rossshire.

As the Shag *Phalacrocorax aristotelis* is the most abundant species of fish-eating bird in this area it is essential to the study to know whether pleuronectids form part of its diet, particularly as the closely related Cormorant *P. carbo* has been found to be a serious predator of plaice and flounders *P. flesus* during fertilisation studies in Loch Craiglin, Argyll (Gross 1947, 1949).

This paper gives the results of the analysis of the stomach contents of 79 Shags from the Loch Ewe area.

Methods

Between October 1964 and September 1966 seventy-nine Shags (46 adults and 33 juveniles) were collected from Loch Ewe. The birds were examined as soon after death as possible; when examination had to be delayed they were deep-frozen. The contents of the oesophagus and stomach were removed, and the whole organisms and easily identified remains picked out. The remaining food fragments were washed, and any otoliths (ear-stones) removed for later identification. All whole fish were weighed and measured. The otoliths were identified from the paper by Scott (1906).

Results

Of the 79 stomachs examined, 17 were empty. Details are

Table 1. Stomach contents of 62 Shags from Loch Ewe

Food organism	Specimens	Stomachs concerned (and % of total)
Mollusca		
Dog whelk *Nucella lapillus* (L.)	1	1 (1.6)
Rough periwinkle *Littorina saxatilis* Olivi	1	1 (1.6)
Carpet shell *Paphia* (=*Venerupis*) sp.	1	1 (1.6)
Crustacea		
Aesop prawn *Pandalus montagui* Leach	18	6 (9.7)
Shrimp *Crangon vulgaris* Fabricius	4	3 (4.8)
Hermit crab *Eupagurus bernhardus* L.	1	1 (1.6)
Fish		
Sandeel *Ammodytes* spp.	38	4 (6.5)
Long-spined sea scorpion *Cottus bubalis* Euphrasen	15	8 (12.9)
Herring *Clupea harengus* L.	20	15 (24.2)
Cod *Gadus morrhua* Day	10	4 (6.5)
Saithe *G. virens* L.	10	5 (8.1)
Poor cod *G. minutus* L.	5	1 (1.6)
Unidentified gadoid remains	—	10 (16.1)
Dragonet *Callionymus lyra* L.	8	6 (9.7)
Butter fish *Pholis gunnellus* L.	7	6 (9.7)
Wrasse *Labrus* spp.	5	3 (4.8)
Three-bearded rockling *Motella tricirrata* Day	2	2 (3.2)
Great pipe fish *Syngathus acas* L.	2	1 (1.6)
Worm pipe fish *Nerophis lumbriciformis* (Yarrell)	1	1 (1.6)
Black goby *Gobius niger* L.	1	2 (3.2)
Spotted goby *G. ruthensparri* Euphrasen	1	1 (1.6)
Fifteen-spined stickleback *Gasterosteus spinachia* Day	1	1 (1.6)
Unidentified fish remains	—	13 (21.0)

Table 2. Otoliths (ear-stones) found in the Shag stomachs from Loch Ewe

Fish species	Otoliths	Stomachs concerned
Sandeel *Ammodytes* spp.	500+	2
Cod *Gadus morrhua* Day	500+	7
Poor cod *G. minutus* L.	95	12
Saithe *G. virens* L.	46	7
Haddock *G. aeglefinus* L.	10	4
Herring *Clupea harengus* L.	3	2
Three-bearded rockling *Motella tricirrata* Day	2	2
Sea scorpion *Cottus* spp.	2	1
Plaice *Pleuronectes platessa* L.	1	1
Solenette *Solea lutea* Day	1	1

given of the contents of the remaining 62 in table 1, and of the otoliths found in the stomachs in table 2.

Table 1 indicates that the fish taken most frequently were gadoids (cod etc.) and herring. Others taken were fish characteristic of rocky and sandy inshore waters—scorpion fish, butter fish, wrasse, gobies, sandeels and dragonets. It was felt that there were insufficient data to enable a comparison to be made of the diet of Shags feeding over a rocky sea floor

and a sandy sea floor. While such a comparison has been made by Lumsden & Haddow (1946) for Shags in the Clyde area, there is always the possibility that at least a proportion of the food in the stomach was taken some distance from where the bird was shot, and Mills (1965) has drawn attention to this problem with the Cormorant.

The otoliths found in the stomachs (table 2) give some indication of the food in previous meals and also reveal other fish that have been taken but which have not been recorded from the stomachs in a whole or partially digested condition. However, the picture is somewhat biassed by the nature of the otoliths and the fish. Clupeoids and sandeels are known to be digested rapidly (Lumsden & Haddow 1946) but their otoliths may persist in large numbers, as shown by table 2 for sandeels and also, incidentally, for small cod fry. Some otoliths are affected by digestive juices much more readily than others. For example, gadoid (*e.g.* cod, saithe) otoliths are thick structures and may remain in the stomach in a recognizable form for some time, while others, from scorpion fish and butter fish, will disappear relatively quickly. There is therefore a bias towards the conclusion, from the otolith data, that gadoids are taken more frequently than other fish.

The only evidence of plaice being eaten was from one small otolith. The only other flatfish taken was one solenette *Solea lutea*.

The size of the fish eaten ranged from small dragonets *Callionymus lyra* just over 3 cm in length to mature herring 27 cm long and weighing 180 gm. The longest fish taken, but not the heaviest, was a great pipe fish *Syngnathus acus* 33 cm long.

At a time when a herring fishery was active in the loch in January 1965, a number of birds were taken with two or three herring in their oesophagus and stomach, and because these filled the birds to capacity they were taken to represent a complete 'meal'. Assuming Shags take only one meal a day in winter (according to van Dobben (1952) the Cormorant spends only a short part of the day in fishing, partly because the feathers do not protect it sufficiently against the water) an approximate estimate of their daily winter food consumption is 246 gm, or 13.5% of their average body weight. It is interesting that Lumsden & Haddow (1946) note that in the London Zoological Gardens a Shag is allowed a normal diet of three herrings per day. They go on to suggest that in nature the quantity of food consumed is usually much larger, and mention Newbigin & Elmhirst (1931) recording a Shag containing 51 fish (41 gobies, 7 sticklebacks, 2 wrasse and a saithe). However, as the average weight of 48 of these fish is only in the region of 3 or 4 gm the total weight of the

'meal' was probably 350 to 400 gm. One of the Shags in the present investigation had taken a 'meal' of 360 gm of herring, but this was the heaviest meal recorded.

Because of the interest shown in the presence of organochlorine insecticide residues in fish-eating birds, six Shags were sent for analysis for these residues. The concentrations (parts per million, wet weight) of insecticide residues present in the livers of the birds were as follows:

pp'DDE	0.16 (0.05—0.42)
Dieldrin	0.18 (0.10—0.28)
Gamma BHC	less than 0.01

It is most likely that the dieldrin originated from sheep dip draining into the River Ewe, which flows into the sea at the head of this loch. The levels of contamination are quite low compared with those in other fish-eating birds in Britain (Moore & Walker 1964; Walker & Mills 1965).

Discussion and conclusions

The presence of only one plaice otolith in the Shag stomachs examined suggests that pleuronectids are taken very infrequently. This confirms the findings of Lumsden & Haddow (1946), who recorded no flatfish in the stomachs of 81 Shags in the Clyde sea area, and Steven (1933), who found that flatfish form only an insignificant part of the diet of Shags in Cornish waters.

Lumsden & Haddow (*loc. cit.*) suggest that Shags do not fish on the bottom but in mid-water, although some must fish close to the rocks on the bottom to catch butter fish and cottids. The Cormorant tends to feed more on the bottom, as its diet consists very largely of flatfish (Steven 1933; Mills 1969). However, the Cormorant occurs in Loch Ewe in very small numbers, the ratio of Shags to Cormorants being 25 to 1.

Of the 126 fish taken from the Shag stomachs, only 40 (32%) were food fish. As half of these were herring, and as Shags can have little effect on large shoals of herring, unless present in large numbers themselves, one can conclude that in Loch Ewe this bird is a danger neither to plaice stocks nor to fisheries in general.

Acknowledgments

I should like to express my gratitude to Dr C. E. Lucas, Director of the Marine Laboratory, Aberdeen, for making available the field station facilities at Loch Ewe. I should also like to thank Dr Rex Edwards of the Marine Laboratory and Eddie Smith, skipper of the research launch *Navicula*, for helping me to obtain birds for this study.

Summary

Examination of the stomachs of 79 Shags from Loch Ewe showed that the fish most frequently taken were herring, saithe, cod and sandeels. Flatfish formed only a very small part of the diet. The Shag's daily food consumption in winter was roughly estimated at 250 gm, 13½% of its average body weight. It is concluded that Shags are not a danger to plaice stocks in Loch Ewe.

References

GROSS, F. 1947. An experiment in marine fish cultivation and fish growth in a fertilized sea-loch (Loch Craiglin). *Proc. Roy. Soc. Edin.* 63(B): 56-95.

GROSS, F. 1949. Further observations on fish growth in a fertilized sea loch (Loch Craiglin). *J. Mar. Biol. Ass. U.K.* 28: 1-8.

LUMSDEN, W. H. R. & HADDOW, A. J. 1946. The food of the Shag (*Phalacrocorax aristotelis*) in the Clyde sea area. *J. Anim. Ecol.* 15: 35-42.

MILLS, D. H. 1965. The distribution and food of the cormorant in Scottish inland waters. *Freshwat. Salm. Fish. Res.* 35. 16pp.

MILLS, D. H. 1969. The food of the Cormorant at two breeding colonies on the east coast of Scotland. *Scot. Birds* 5: 268-276.

MOORE, N. W. & WALKER, C. H. 1964. Organic chlorine insecticide residues in wild birds. *Nature* 201: 1072-1073.

NEWBIGIN, M. & ELMHIRST, R. 1931. *Life by the Seashore.* London, 2nd ed.

SCOTT, T. 1906. Observations on the otoliths of some Teleostean fishes. *Rep. Fish. Bd. Scot.* 24: 48-82.

STEVEN, G. A. 1933. The food consumed by shags and cormorants around the shores of Cornwall (England). *J. Mar. Biol. Ass. U.K.* 19: 277-292.

VAN DOBBEN, W. H. 1952. The food of the cormorant in the Netherlands. *Ardea* 42: 1-61.

WALKER, C. H. & MILLS, D. H. 1965. Organic chlorine insecticide residues in Goosanders and Red-breasted Mergansers. *Wildfowl Trust Ann. Rep.* 16: 56-57.

The food of the Cormorant at two breeding colonies on the east coast of Scotland

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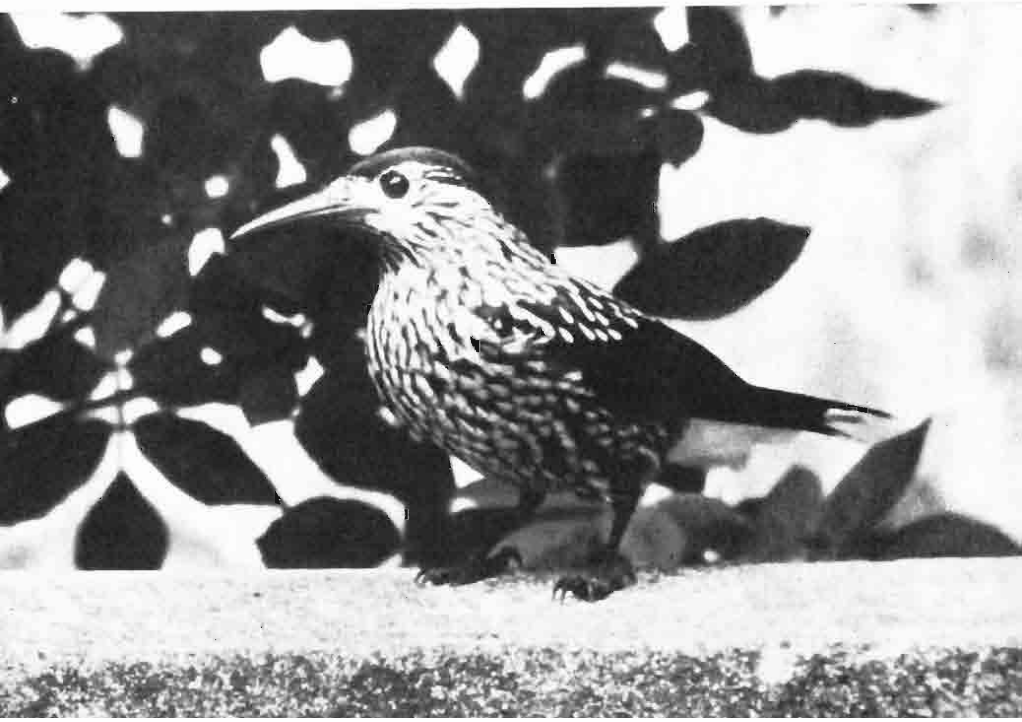
Introduction

Information on the food of Cormorants *Phalacrocorax carbo* in Scotland has been mainly confined to records from inland and estuarine waters (Mills 1965). The marine food of Cormorants around the shores of southwest England has been well investigated by Steven (1933); but only occasional reference has been made to their diet in Scottish coastal waters (Gross 1947, 1949; Mills 1965). For this reason it was felt that the limited information on the food of Cormorants at two breeding colonies on the east coast of Scotland should be recorded.

PLATE 16. Nutcracker, Shetland, 22nd-25rd August 1968. Note the heavy bill, white under tail-coverts and border to tail, and bold speckling, like an enormous plump Starling (see p. 290).

Photographs by Dennis Coutts



PLATES 17-18. Breeding Snowy Owls, Fetlar, Shetland, 1967 and 1968, showing the adult male, the more heavily marked female with chicks, an aggressive display by a young bird, and a first-winter female on a fence post in December (see p. 244).
Photographs by R. J. Tulloch

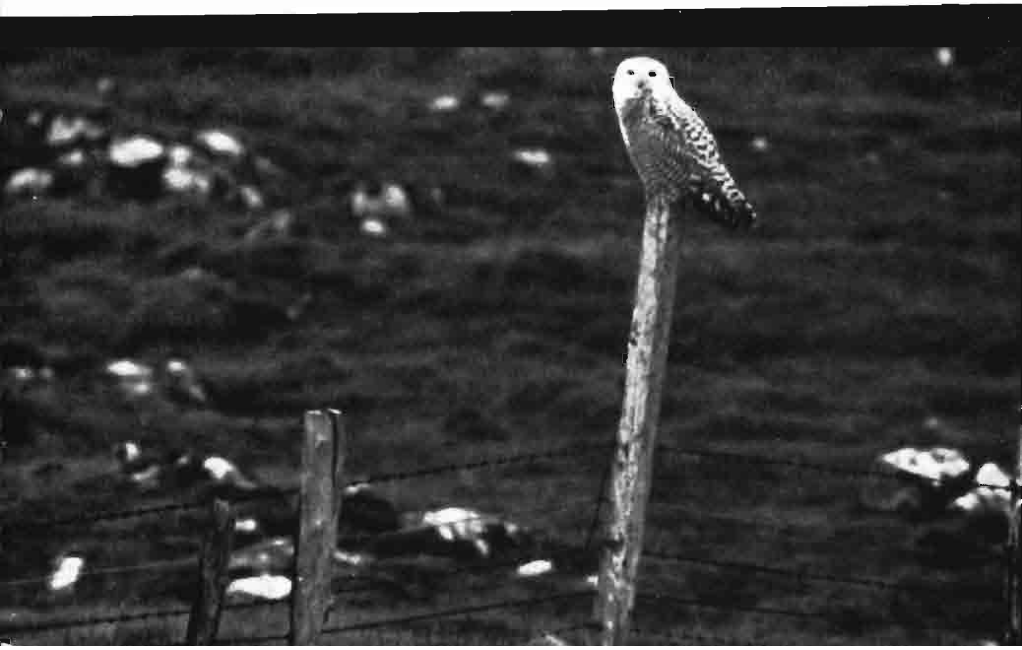


PLATE 19. (a) Nutcracker, Shetland, 22nd-23rd August 1968, with a House Sparrow (page 293). (b) Brünnich's Guillemot found dead, Unst, Shetland, 20th March 1968 (see page 285).

Photographs by Dennis Coutts

Methods

The two breeding colonies or rookeries from which the data were collected were situated on the Ord, a sea cliff on the southern boundary of Caithness, and on the Lamb, a small island off North Berwick at the mouth of the Firth of Forth and close to the south shore. The data originated from two sources: ejected meals collected when the birds vomited when disturbed; and pellets composed of the lining of the stomach, in which there are indigestible remains such as otoliths (ear-stones), shells, crab claws and stones.

The ejected meals contained totally undigested fish as well as partly digested ones. Van Dobben (1952) describes the process of vomiting and digestion of food by the Cormorant in the Netherlands in some detail. The samples of ejected food used for this study were not collected systematically and can therefore give only a qualitative assessment of the bird's diet at these sites during June and July.

The pellets are oblong and vary in length from 4 cm to 7 cm. Each one is surrounded by a mucous membrane. Van Dobben (*loc. cit.*) found that the lining of the stomach is pushed off and envelops the undigested remains of the food. After production of the pellet a new lining is formed to receive a new meal and to be pushed off in its turn. Van Dobben draws attention to the fact that pellet formation does not appear to occur in the Shag *P. aristotelis*, and he also points out that while Lumsden & Haddow (1946) found otoliths in the faeces of the Shag he never observed solids in those of the Cormorant. Furthermore, both Lumsden & Haddow (*loc. cit.*) and Mills (1969) found large numbers of otoliths in the stomachs of Shags, but Madsen & Spärck (1950) never found accumulated otoliths in the stomachs of Cormorants in Denmark and the author never found them in the Cormorants he examined from Scottish inland waters (Mills 1965).

All whole fish were measured. The otoliths were identified from the paper by Scott (1906), and in some cases it was possible to determine the age of the fish from these.

Results

The food organisms found in the ejected meals at the two colonies are listed in tables 1 and 3, and details of the otoliths found in the pellets are given in tables 2 and 4. As the ejected meals were collected at random it is not known whether the numbers of each fish species recorded give a true picture of the actual proportions of these species taken. However, it does seem evident, looking at the data on vomits and pellets together, that flatfish are the most important food

Table 1. Food of Cormorants at the Ord, Caithness, June and July 1965

Food organism	Specimens
Crustacea	
Edible crab *Cancer pagurus* L.	2
Spider crab *Hyas araneus* L.	2
Fish	
Sandeel *Ammodytes* spp.	35
Dab *Pleuronectes limanda* Day	3
Sea scorpion *Cottus* spp.	3
Sea trout *Salmo trutta* L.	2
Mackerel *Scomber scombrus* L.	1
Pollack or lythe *Gadus pollachius* L.	1
Butter fish *Pholis gunnellus* L.	1
Three-bearded rockling *Motella tricirrata* Day	1
Lumpsucker *Cyclopterus lumpus* L.	1

Table 2. Details of otoliths found in Cormorant pellets at the Ord

Fish species	Otoliths
Dab *Pleuronectes limanda* Day	28
Plaice *P. platessa* L.	7
Long rough dab *Hippoglossoides limandoides* Day	2
Unidentified flatfish	35
Saithe *Gadus virens* L.	6
Poor cod *G. minutus* L.	1
Mackerel *Scomber scombrus* L.	2

Table 3. Food of Cormorants at the Lamb, Firth of Forth, July 1965

Food organism	Specimens
Dab *Pleuronectes limanda* Day	10
Plaice *P. platessa* L.	2
Viviparous blenny *Zoarces vivparus* (L.)	8
Sea scorpion *Cottus* spp.	5
Butter fish *Pholis gunnellus* L.	3

Table 4. Details of Otoliths found in Cormorant pellets at the Lamb

Fish species	Otoliths
Dab *Pleuronectes limanda* Day	4
Plaice *P. platessa* L.	1
Unidentified flatfish	2
Cod *Gadus morrhua* Day	4
Saithe *G. virens* L.	2
Pollack or lythe *G. pollachius* L.	1
Whiting *G. merlangus* L.	1

item and that the dab *Pleuronectes limanda* is the flatfish most frequently taken.

The fish recorded include those frequenting a sandy bottom (dabs, plaice and sandeels) and those frequenting a rocky sea floor (butter fish, blennies, sea scorpions, wrasse, saithe and lythe). The average lengths of some of the fish taken

were: butter fish 14 cm, sea scorpion 15 cm, dab 18 cm, plaice 22 cm, and viviparous blenny 22 cm. The largest fish recorded was a lythe 38 cm (15 in) long.

Other objects found in the pellets were the teeth of wrasse, cranial bones and vertebrae of fish, claws of crabs, and dog whelks *Nucella lapillus*, top shells *Gibbula cineraria* and stones.

It was possible from some of the otoliths in the pellets to determine the age of 36 flatfish, and this information is summarised in table 5. It would appear from the table that flatfish less than two years old are not eaten. However, it is known

Table 5. Ages of flatfish taken by Cormorants, identified from their otoliths

	Number of fish of age (years)		
	2 - 3	3 - 4	4 - 5
(a) from the Ord			
Dab	4	17	3
Plaice	2	3	0
Long rough dab	0	2	0
(b) from the Lamb			
Dab	3	1	0
Plaice	1	0	0

that the Cormorant will take small fish (Mills 1965), so that the absence of small otoliths may be because they are broken down by digestive juices.

Discussion and conclusions

This limited study tends to confirm the finding of Steven (1933) that flatfish form a large part of the Cormorant's diet. Furthermore, when this diet is compared with that of the Shag (Steven 1933; Lumsden & Haddow 1946; Mills 1969) the study reveals the similarities and differences in the food of the two species, and shows that they are not in competition with one another for the major part of their food (see Lack 1945).

The Cormorant is eating fish of commercial value, namely flatfish, and while it is unlikely that it will have any serious effect on, say, plaice stocks in open coastal waters, there is the possibility that if present in large numbers it could seriously affect flatfish stocks in more enclosed sea lochs, particularly those modified for fish farming.

Acknowledgments

I should like to thank Dr Ian D. Pennie and R. W. J. Smith for collecting the food material and Dr Bennet B. Rae, of the Marine Laboratory, Aberdeen, for identifying and ageing the flatfish otoliths.

Summary

An examination of food material in the form of ejected meals and

pellets revealed that flatfish, particularly dabs, are one of the most important food items of Cormorants at the Ord and the Lamb in June and July. Other fish recorded were sandeels, saithe, lythe, butter fish, sea scorpions and viviparous blennies. It is concluded that Cormorants, if present in large numbers, might have serious effects on flatfish stocks in the more enclosed Scottish sea lochs.

References

GROSS, F. 1947. An experiment in marine fish cultivation and fish growth in a fertilized sea-loch (Loch Craiglin). *Proc. Roy. Soc. Edin.* 63(B): 56-95.

GROSS, F. 1949. Further observations on fish growth in a fertilized sea loch (Loch Craiglin). *J. Mar. Biol. Ass. U.K.* 28: 1-8.

LACK, D. 1945. The ecology of closely related species with special reference to the Cormorant (*Phalacrocorax carbo*) and Shag (*P. aristotelis*). *J. Anim. Ecol.* 14: 12-16.

LUMSDEN, W. H. R. & HADDOW, A. J. 1946. The food of the shag (*Phalacrocorax aristotelis*) in the Clyde sea area. *J. Anim. Ecol.* 15: 35-42.

MADSEN, F. J. and SPARCK, R. 1950. On the feeding habits of the Southern Cormorant (*Phalacrocorax carbo sinensis*) in Denmark. *Dan. Rev. Game Biol.* 1: 45.

MILLS, D. H. 1965. The distribution and food of the cormorant in Scottish inland waters. *Freshwat. Salm. Fish. Res.* 35. 16 pp.

MILLS, D. H. 1969. The food of the Shag in Loch Ewe, Ross-shire. *Scot. Birds* 5: 264-268.

SCOTT, T. 1906. Observations on the otoliths of some Teleostean fishes. *Rep. Fish. Bd. Scot.* 24: 48-82.

STEVEN, G. A. 1933. The food consumed by shags and cormorants around the shores of Cornwall (England). *J. Mar. Biol. Ass. U.K.* 19: 277-292.

VAN DOBBEN, W. H. 1952. The food of the cormorant in the Netherlands. *Ardea* 42: 1-61.

Aberdeen University fieldwork on St Kilda in 1968

A. ANDERSON, G. BIRNIE, H. E. M. DOTT and M. MARQUISS

A small seabird study group spent from 13th to 25th July 1968 on the main island of Hirta, St Kilda, with one day on the island of Dùn. The party consisted of J. Mojsiewicz and the four authors, and was led by A. Anderson. We were later saddened to learn of the death of Julian Mojsiewicz on 25th October 1968. He was chief technician in the Zoology Department and came along as our expedition photographer. His cheerfulness and willing assistance added much to the success of the trip.

The programme of seabird studies, which was carried out in its entirety, included a census of Fulmars on Hirta and Dùn, and studies of the distribution and abundance of seabirds on Hirta and Dùn, and of the diurnal activities of four seabird species. No boat was available for sea counts and censuses were carried out on foot only.

In addition, a census of Soay sheep on Hirta was completed on 22nd July (the results are lodged with the Nature Con-

servancy, Edinburgh), and a collection of sheep bones, for assessment of Strontium 90 content, was made by J. Mojsiewicz for the Rowett Research Institute, Aberdeen.

We are indebted to the SOC, the Seabird Group, the SRC of Aberdeen University, and the Carnegie Trust, all of whom helped to finance the work. The Nature Conservancy kindly provided accommodation on St Kilda and arranged for our sea transport by army tank-landing craft. AA personally wishes to thank the National Trust staff (Edinburgh office) for getting him to St Kilda by boat, along with their own work party.

Fulmar census (A. Anderson, G. Birnie). The Fulmar population of Hirta was previously censused in 1956 by A. Anderson, and again in 1961, giving totals of 19,400 and 19,700 occupied sites respectively. The July 1968 total was 23,100, a 17% increase on the 1961 one. That a real increase has taken place over these seven years cannot be stated dogmatically, since nothing is known of egg or chick mortality and consequent possible desertion of the sites by the failed breeders in the different years. But, from knowledge of the habits of failed breeders elsewhere, it seems unlikely that reduced egg or chick mortality in 1968 accounts for the higher figure. It is noteworthy that quite considerable changes in numbers on certain sections of cliff have taken place since 1961. It is hoped that the census will be repeated in 1969, and thereafter at intervals of 5 to 10 years.

Seabird distribution (H. E. M. Dott, M. Marquiss). A survey of breeding seabirds, other than Fulmar, was made on Hirta. Dùn was surveyed during a visit on 21st July. The coastline was explored thoroughly on foot, and breeding areas were plotted on a map. The numbers of breeding birds were estimated where possible (nests for the Kittiwake), but only the extent of the colony was noted in hole-nesting species like the Puffin. It is hoped that this preliminary survey may be of value for Operation Seafarer in 1969.

Diurnal rhythms of seabirds (A. Anderson, G. Birnie, H. E. M. Dott, M. Marquiss). In censusing seabird colonies it is necessary to know whether numbers at the breeding sites fluctuate during the day. We chose to examine four species—Guillemot, Kittiwake, Puffin and Fulmar.

A mixed colony of Guillemots and Kittiwakes at Glen Bay was selected for study. Two teams of two observed in six 6-hr shifts, keeping the birds in view continuously from 0400 to 2230 hrs BST on 19th July, and from 0500 to 2130 hrs BST on the 20th. For the Guillemot, at half-hourly intervals, total adults on land and the total apparently brooding, and numbers of arrivals and departures of adults during a 5-minute period, were recorded. For the Kittiwake, total adults on

land and arrivals and departures during five-minute periods were recorded. The numbers of eggs and young of both species were counted. Activity was related to time of day, light intensity, tidal cycle and wind velocity. A mixed colony of Puffins and Fulmars on the north coast of Dùn was similarly studied from 0400 to 2300 hrs BST on 23rd July.

Analysis of the data is proceeding, and some differences between the species studied are apparent at this stage. Kittiwake numbers changed little during the day. Fulmar and Puffin numbers showed changes according to time of day. But the marked changes in Guillemot numbers could not be related to time of day or to any other factor.

Puffin numbers were found to be highest in the evening. Observations were therefore made at an accessible Puffin colony at Ruaival to compare such counts with the true breeding population. In an area outlined with pegs and string, the number of used or recently used burrows was ascertained with some accuracy and related to the numbers of Puffins counted there next evening.

It is intended to publish the results of this 1968 fieldwork as soon as analyses are complete.

Short Notes

Some observations on birds at sea off northwest Scotland

On 18th June 1968 I sailed through the Pentland Firth on m.v. *Gullfoss* en route for Iceland. By 8.30 a.m. we were due south of Rora Head, Hoy, and about six hours later we were north of the Rona-Sulisgeir shelf at approximately 59°30'N, 6°W. Our speed was about 15 knots. At intervals there were unexpected increases in the number of birds, the most significant occurring some 50 miles north of Loch Eriboll. The day began with visibility reduced to some 200 yards, clearing to three miles by noon and to five miles by 4 p.m. A hazy sun shone all day and it was warm. The following is a list of the birds seen on 18th June, with a few records (all dated in the text) for the 19th, when we ran into a storm from the north.

Leach's Petrel. 15-20, usually singly or in pairs, the first noted 2 hours W of Hoy.

Storm Petrel. 10-12, all single birds. First noted near Rona.

Manx Shearwater. Many single birds and groups of up to 5. A flock of c.200 flying SW at about 59°N, 5°W.

Great Shearwater. One with 3 Manx Shearwaters about 35 miles NW of Rona. We observed this bird for some 5 minutes in excellent light. It came as close as 200 yards but was generally 600-800 yards from the boat. The white rump was fairly distinct, but the well known fieldmark which the *Handbook* describes as a "conspicuously capped appearance" was not very noticeable. The strong sunlight was shining directly over

my shoulder towards the shearwaters, and this, according to Parrack (*Aids to Identification: Shearwaters and Divers*, Tyneside Bird Club) results in the contrast between the dark head and lighter back being effectively reduced. Nevertheless this feature was noticeable in comparison with the Manx Shearwaters, which appeared a uniform very dark brown. The white tail crescent did not assume the significance which is implied in *Aids to Identification*.

Sooty Shearwater. One with 12 Manx Shearwaters at about 59°50'N, 9°30'W.

Fulmar. Commonest bird and almost always in sight. Up to 20 circling the boat.

Gannet. Small numbers. The only birds seen more than 20 miles from land were immatures until we reached the Faeroes region.

Cormorant. A group of 23, about 30 miles NE of Rona, heading NE.

Shag. A few noted within 20 miles of land.

Ringed Plover. One flying NW at 11 a.m. on 19th June about 62°N 13° W.

Curlew/Whimbrel. One, almost certainly a Curlew, flying SE about 12 miles N of Rona.

Great Skua. Very common in the Pentland Firth when, with visibility 600 yards at best, as many as 20-25 were within sight of the ship. Elsewhere small parties within 20-30 miles of land, but only two single birds further out to sea.

Arctic Skua. Only 3 single birds seen, all in the Pentland Firth.

Great Black-backed Gull. Often one or two birds in sight, but they rarely followed the boat closely.

Lesser Black-backed Gull. Up to 60 followed the boat in the Pentland Firth and there were 35 near Rona. Up to 6 seen in the open sea.

Herring Gull. Numbers similar to Lesser Blackback close to land, but only one seen at any distance from land.

Common Gull. One flying NW at about 60°N, 10° W.

Glaucous Gull. We encountered the first, a juvenile, on the 19th in the Faeroes region.

Kittiwake. Seen on many occasions in groups of up to 50, less common towards the NW.

Arctic Tern. Several near land, and one flying W about 59°40' N, 8° W.

Razorbill. Several seen, especially near Rona. Three seen about 60° N, 9°50' W.

Guillemot. Very common in groups of up to 25.

Puffin. Many, especially close to land. A few seen well out to sea.

Swift. One tried unsuccessfully to land on the boat during the storm of 19th June at about 62° N, 13° W, but after about 40 minutes was swept out to sea by the wind.

ANDREW D. K. RAMSAY.

Green-winged Teal in Lanarkshire

On the morning of 12th April 1968 I was watching duck on the loch at Quothquhan Lodge, Biggar, through my binoculars, when I noticed a drake Teal about 100 yards away which showed no horizontal white line above the wing, unlike the other Teal nearby. On closer inspection I saw there was a slightly off-white and not quite vertical mark in front of the wing. The face pattern was noticeably different from the other drake Teal, where the green and brown markings were clearly divided by an olive line; this bird showed only a slight olive line at the front of the normal pattern. It also

appeared slightly longer and rather 'fluffier'. I had no doubt that it was an adult male Green-winged Teal, a bird I have seen many times in America.

I saw the bird again early on the morning of 14th April and on this occasion had much better views of the off-white markings in front on the wing which appeared to extend from the lower breast to the shoulder at an angle of about 70°. Miss R. S. Hunter came over later that morning and had a good view of the bird, and it was subsequently seen by other observers on 19th April.

ROBERT ERSKINE-HILL.

(This is the ninth Scottish record of this North American subspecies, and the eighth since 1952. All have been drakes. There is one previous Lanarkshire record (*Scot. Birds* 4: 502).—ED.)

Surf Scoters in East Lothian

On 15th September 1968 we observed a black duck with a conspicuous white patch on the back of the head in flight with Common Scoters off Gullane Point. Closer observation of the bird on the water revealed that it was a drake Surf Scoter. In addition to the nape patch, clearly visible at a considerable distance, there was a transverse band of white across the top of the head. The bill was reddish-pink and orange-yellow.

Like the Common Scoters with which it associated, the Surf Scoter was displaying, holding its head and neck stiffly vertical with the bill depressed. This behaviour drew our attention to the presence of a duck Surf Scoter which might otherwise have been overlooked. Its plumage appeared somewhat sandier than that of the Common Scoter, with off-white facial markings and a buff-white nape, almost as prominent (when seen from behind in strong sunlight) as that of the drake. The drake twice took off for short distances, alighting with wings upraised. We did not see the duck in flight to confirm the absence of a white wingbar, but would probably have seen it if one had been present. Several Velvet Scoters were near but the Surf Scoters did not associate with them.

W. KENNETH RICHMOND, ROBERT OSBOURNE.

(This seems to be the first record for East Lothian. In spite of repeated searches the birds were not seen again, unlike some of the increasing number of Surf Scoters reported in recent years, as summarised in *Scot. Birds* 4: 446.—ED.)

Goshawk in Shetland

On at least 18 occasions during winter 1967/68 I saw a Goshawk at Kergord, in Weisdale. The bird was also seen

by R. J. Tulloch, A. R. Mainwood, J. H. Simpson, R. Duthie, Dr W. L. N. Tickell and others.

I first found it on 12th November 1967. As I walked through one of a small group of plantations, mostly conifers, I was startled as a biggish bird of prey flapped noisily from a tree about 25 feet overhead. In the brief view I had I saw that it was light buffish underneath with extensive but not heavy barring. On the 19th I stayed outside the wood while Robert Duthie flushed the bird. It flew up from the same place as before, banking sharply and showing heavy barring under the tail.

Ten days later I flushed two female Sparrowhawks from the same place; Bobby Tulloch was there to see them. We moved to a nearby plantation and the Goshawk flew out, followed by a male Sparrowhawk, which looked tiny by comparison. The Goshawk's tail was relatively shorter and its head bigger; the Sparrowhawk's small head gives it a deep-chested look rather like a pigeon. We watched the Goshawk fly on for about three minutes before it disappeared over the hill across the valley. It gave 10-12 wingbeats before gliding for 8-10 seconds during this long and high flight. The tips of the primaries were slightly upturned when it was gliding. Bobby Tulloch commented that in level flight it looked surprisingly like a slow-motion Peregrine.

John Simpson was next to see the bird with me, on 15th December. This time two female Sparrowhawks flew out followed by the Goshawk. Now it flew very slowly along the hill, a mere foot or so above the ground and always looking as if it was about to touch down, in complete contrast to the high flight. I thought it had probably just fed. With continued visits to Kergord I frequently witnessed this mode of flying in the afternoon. In the mornings the bird would either fly out fast or I would not find it. I concluded that this was its time for hunting.

More and more remains of Hooded Crows accumulated near the Goshawk's roost or perching place. I saw it chase a Woodpigeon unsuccessfully once and later found remains of this species with the crow remains. During one visit I surprised the Goshawk flying towards me with a Hooded Crow in its talons. It turned quickly, dropping the prey. The crow, though still in one piece, had the breast eaten away. Sometimes the presence of the Goshawk at its usual roost was indicated by calling Ravens perched nearby. They often mobbed it too when it soared very high over the trees.

From a hide I later observed the Goshawk sitting 20 yards away. Its head was paler than the upperparts, which were brownish with pale flecks in the wings and pale primary

coverts. About four bars showed heavily in the upper tail. Underneath the bird was a pale straw colour, the wings barred and the breast streaked. The vent area was a very pale buff.

I considered it to be an immature male, but would say that one needs to see both Goshawk and Sparrowhawk very well indeed before being confident that a male Goshawk is not just a large female Sparrowhawk. I do not believe that the number of tail bars could be counted accurately, let alone serve as an identifying feature, especially with a bird in flight. However, the diet of Hooded Crows should leave no doubt about the Kergord bird. It was last seen on 8th April 1968 by me.

DENNIS COUTTS.

Apparent distraction display by Golden Eagle

On 8th July 1968 my wife and I were making a routine visit to the eyrie of a pair of Golden Eagles in an Argyll glen. We were expecting the single young eaglet to be leaving the nest very shortly. As we approached the eyrie rock we saw an eagle leave the crag adjacent to the nest and fly over to the opposite side of the glen, which is very narrow at this point. From the colouring this was obviously the adult female, but her subsequent behaviour was very unusual. With outstretched wings slowly beating, the eagle hopped ponderously uphill, pausing at intervals to look at us. We went across the hillside towards her and were able to approach to within 200 yards, at which range the golden feathers at the back of the neck were clearly visible. As we approached, the uphill hopping with outstretched wings had continued, but she now rose and flew over our heads back towards the eyrie side of the glen. When we climbed up the crag to the eyrie and checked that the young eaglet was still on the nest, we saw the two adults flying overhead to the opposite side of the glen again. The female then continued her uphill hopping and wing flapping until we were away from the vicinity of the eyrie. Although this particular pair of eagles is always very bold and much in evidence, this is the only occasion on which we have seen such obvious distraction display.

M. J. P. GREGORY, C. GREGORY.

Little Ringed Plover breeding in Clyde

A pair of Little Ringed Plovers nested successfully in 1968 on a piece of waste ground in the Clyde area, near water. This is the first time the species has been found breeding in Scotland, though it has been spreading north in England.

I found a single bird at this site on 8th May and by the 17th, from its behaviour, I suspected it had a nest. It was calling continuously and was very agitated. A second bird, thought to be the male, was not seen until the 25th, and in spite of considerable searching no nest was ever found. Professor M. F. M. Meiklejohn managed to see one of the birds on 30th May and confirmed the identification.

On 12th June M. Forrester visited the site and both birds flew above his head in an extremely agitated manner, suggesting that hatching might be taking place. Still nothing was found. On the 19th, however, he had a momentary glimpse of a running chick; but in spite of further searches by both of us no more was seen until the 26th, when again a single chick was seen briefly by MF.

On 15th July, at last, after many hours in the area, I was successful in finding the three birds together, and was able to get within 20 yards of the young one and watch it for some time. When I eventually flushed them the birds flew off some way and I could see that the young one was strong on the wing.

DONALD STALKER.

Temminck's Stint in Renfrewshire

On 22nd May 1968 we saw a very small wader fly up from the marsh at Paisley Moss. It flew erratically and towered high in the air before flying off, but it soon returned and landed on a small muddy island, where we were able to approach within 12 yards. We identified the bird as a Temminck's Stint, and spent the next two hours watching it and making notes.

The bird was watched for an hour and a half the following morning by R. A. Jeffrey and ourselves, and further notes were made. In the afternoon RAJ, IG and H. Galbraith saw it again, and in the evening the bird was shown to D. J. Norden, who at once confirmed our identification.

A nearby Pied Wagtail was the only bird we were able to use for comparative purposes. The birds were about the same in body length, but the wagtail was much slimmer. The stint appeared much smaller than a Dunlin, and indeed was so tiny that we sometimes had difficulty in finding it against a muddy background. It was a silent bird, and was only heard calling at 2030 hrs on the 23rd when it rose without warning and flew off, giving a continuous, cricket-like twitter *tirrrirrrirrr*.

The following is from our detailed notes:

Round head with high forehead, light supercilium not always obvious; streaky grey head and breast, paler on centre of breast, and extending

into slightly browner mantle; wing feathers grey-brown with creamy buff margins; some scapulars very dark brown with buff margins giving scaly appearance; thin white wing-stripe; underparts pure white; tail white with thick black centre; dark or black eye; short black bill; greenish-brown legs.

After seeing this bird we are convinced that the bird we saw at Paisley Moss on 21st May 1964 (*Scot. Birds* 4: 89) was a Temminck's Stint, although the record was not accepted at the time. Except that it did not tower, the 1964 bird was exactly the same as the 1968 one.

GEORGE T. WHITE, IAIN GIBSON.

Early Pectoral Sandpiper in Morayshire

On 15th July 1967 at an inlet at Findhorn Bay my attention was attracted to a wader I did not recognise. The bird flew about five yards and alighted near a Common Sandpiper, when I saw it was slightly larger than that species. I watched it through binoculars before it flew away completely, weaving slightly as it took off and uttering a Budgerigarlike *chirrit* several times.

The following description was taken, and from this the bird was identified as a Pectoral Sandpiper:

Side of head very pale buffish, crown darker brown; noticeable broad dark grey-brown breast-band ending abruptly and contrasting with white underparts; back spangled very dark brown and buff, similar to Reeve; no noticeable wing-bar; tail with dark blackish central feathers and white flashes at sides, similar to Ruff; bill Dunlin-like and very slightly decurved, blackish with suggestion of light patch at base; eye dark; legs orangish or orange-yellow.

TERRY GRANT.

(The Pectoral Sandpiper has now been recorded in Scotland on about 18 occasions, 11 of them between 1959 and 1967. This record is the first for the Moray Basin and the date is nearly four weeks earlier than any of the others, which fall between 10th August and 24th November.—ED.)

Gull-billed Tern in East Lothian

On 22nd March 1968, on the west side of Aberlady Bay, I saw what at first seemed to be an immature Black-headed Gull. However, I soon realised that it was only two-thirds as big as a nearby adult of that species and had a black bill and dark greenish-black legs.

It was rather like a Sandwich Tern but was longer-legged and had a stouter, deeper bill and no black cap, the crown being white, with a black mark on the ear coverts. The back and scapulars were pale grey, with the tail very pale grey and the primaries noticeably whiter; the underparts were pure white.

The bird had a restless habit of frequently flicking its wings. It preened for a while before settling down on its breast facing into the wind, but it was later disturbed by two Shelducks and flew off. In flight there was no black visible on the primaries and while the tail showed a slight fork this was not as pronounced as in a Sandwich Tern.

I identified this bird as a Gull-billed Tern in winter plumage. It had possibly reached Aberlady as a result of easterly winds on preceding days.

A. MACDONALD.

(The three previous Scottish records of this species are of single birds in Orkney on 7th May 1913 (*Scot. Nat.* 1913: 154), East Lothian on 11th September 1960 (*Scot. Birds* 1: 335) and West Lothian on 3rd September 1966 (*Scot. Birds* 4: 448). March is an unusually early date for Britain, but Bannerman (*The Birds of the British Isles* 11: 124) notes that the species returns to its European breeding grounds in late March and in April.—ED.)

Guillemot calls

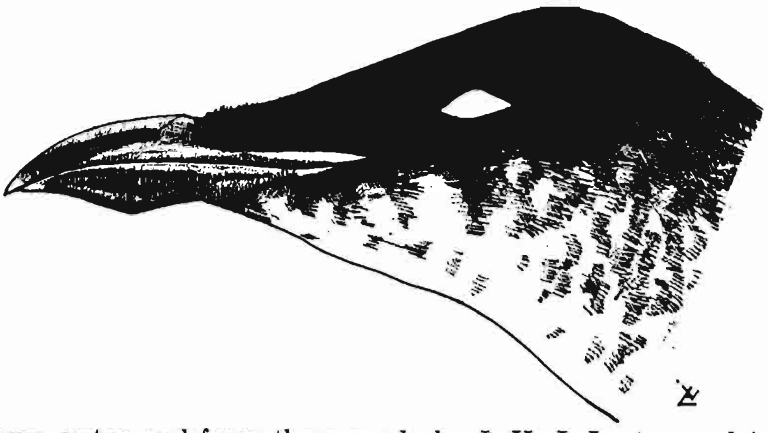
Several times last autumn, when fishing from a dinghy a mile north of Portsoy, Banffshire, I noted two Guillemots at the Codling Hole—a small area of sea with a rocky bottom suitable for line fishing. On 26th and 27th October 1968, days of flat calm, I heard one or both of the birds calling while floating on the water—a loud *kuk kuk kuk kuk,* like a Red-throated Diver but slower. The usual growling *aar aar aar aar* was also heard twice on the 27th. Two Guillemots were at the same spot on 17th November in moderate conditions, but no call was heard. There seems to be a lack of published information about calling from the water by this species.

J. EDELSTEN.

Brünnich's Guillemot in Shetland

On 20th March 1968, following a week of southwesterly gales with sleet and snow showers, I took the first opportunity to check the beaches for dead birds. At Norwick, in Unst, I came across a freshly dead guillemot which, from its black-and-white plumage and short deep bill, I took to be a Brünnich's Guillemot.

I sent the corpse to the Royal Scottish Museum, where its identity was confirmed by I. H. J. Lyster, Dr W. R. P. Bourne, Dr J. Coulson, M. J. Everett and J. J. D. Greenwood, and the skin preserved as a study specimen (reg. no. 1968.23). The following description of the bird has been compiled from my



own notes and from those made by I. H. J. Lyster, and includes comments by Dr Bourne.

Forehead, crown and nape black, lacking whitish patch behind eye of winter-plumaged Guillemot; ear coverts and sides of throat white with blackish tips to many feathers, especially upper ear coverts; chin white with black feathers to edge of lower mandible; throat, breast, flanks, belly, under tail-coverts, axillaries and wing linings white; upperparts, wings and tail black with pale blue-grey tinge noticeable in certain lights; inner web of primaries paler with whitish edge; tips of secondaries white; comparatively dark shafts to primaries (white in Guillemot; even darker in Razorbill); rather prominent dark bases to longer under wing-coverts; bill black, tipped whitish-horn, with upper mandible yellowish at gape and fairly prominent bluish-grey horny ridge along it from nostril to gape; legs and webs orange-yellow with black joints when found, fading later to horn yellow-brown with darker joints; iris deep chocolate-brown with black pupil when found; wing 212 mm flat; tail 48½ mm; tarsus 36 mm; bill 36½ mm from feathers, depth at nostril 13½ mm. On dissection found to be female with ripe ovaries; well fused sutures of skull might suggest it was adult.

F. J. WALKER.

(This is only the second satisfactory record of this northern species in Scotland, the first being a female picked up in East Lothian, in rather high condition, on 11th December 1908, and now in the Royal Scottish Museum (*Ann. Scot. Nat. Hist.* 1909: 75). Both the register (no. 1909.134) and the label on the skin give the date as 10th. It is likely that other Brünnich's Guillemots occur off the Scottish coast and are not identified, but care is needed to distinguish them from northern forms of the common Guillemot. The head markings, dark upperparts and comparatively short, thick bill with a prominent more or less whitish ridge from below the nostril to the gape are the main features in the field, while such characters as the darkish shafts of the primaries and the comparatively dark bases to the longer under wing-coverts may aid identification in the hand. It may be noted that ac-

cording to the *Handbook* some first-winter Guillemots may have bills as short as 37 mm, but presumably not as late as mid March; some Guillemots may also show a pale line on the upper mandible (see photograph in *Birds* 2: 56), or even a horny ridge, while the pale line or ridge may vary in prominence in Brünnich's Guillemot. Caution is also needed to avoid confusion with a young Razorbill with its comparatively small bill and white chin. The accompanying sketch of the Unst bird by I. H. J. Lyster illustrates the characteristic bill features of the Brünnich's Guillemot, and we are also reproducing a photograph of it by Dennis Coutts (plate 19).—ED.)

Little Owls nesting in Midlothian

A Heron fishing, a couple of Moorhens scurrying into the long grass, a Dipper darting upstream, a Grey Wagtail flitting from rock to rock: these sights are typical on the small burn beside which I live, only a few miles inland from Edinburgh. Part of this burn runs through a belt of mixed sycamore, ash, beech, elm, alder and conifers. In the late evenings of summer 1968 the more usual bird sounds were drowned out by a very noisy family of Little Owls living in the trees along the burn.

I did not find the nest, nor do I know exactly when the owlets left it, but their curious, persistent 'squeezing' cries first attracted me to investigate on a warm, still evening in early May. I heard the *kleep kleep* calling of one of the adults, and soon saw it gazing at me from a dead stump 50 yards away. It flew off, and shortly afterwards I found three owlets about 20 feet up in a sycamore, one with its back to me but the others staring at me and wobbling their heads about in a curiously disjointed way—in the manner of those toy animals one sees in the rear windows of some cars. From the voices of the parents and the young, and from the small size and plumage of the adult, I had no doubt that these were Little Owls.

I saw and heard the owlets frequently over the next two months. There were certainly four of them, perhaps more. They flew more frequently, and ranged further and higher in the tree canopy, and gradually their voices became stronger. The parents were seen more rarely, but occasionally they called well after dark, and once or twice I saw them quite early in the evening, bounding along as they flew back towards their young, presumably with prey for them. By mid July I saw the owlets only occasionally, and they were probably moving still further afield.

IVISON S. WHEATLEY.

(This is the first breeding record for Midlothian. A series of recordings of the young birds calling was made by W. Brotherston.—ED.)

Spring and summer food of Tawny Owls in Edinburgh

Between 26th April and 6th June 1968 I collected and analysed 100 Tawny Owl pellets from a roost at Southfield Hospital, Liberton, Edinburgh. A pair of owls used the same tree regularly, and as they were often seen sitting on opposite sides of the trunk I assumed they were not breeding. Their probable hunting territory comprised mixed woodland, hedgerow, fields (grass and crops), gardens, lawns and roadside vegetation, thus offering a wide selection of potential prey.

In the analysis, I identified mammals from their skulls and jaws, aided by Lawrence & Brown (*Mammals in Britain, their Tracks, Trails and Signs* 1967), and bird remains were identified from their skulls by I. H. J. Lyster of the Royal Scottish Museum. I was thus able to calculate the minimum number of individuals of each species and attempt a quantitative prey analysis. The results are tabulated below, and follow the system used by Southern (*Ibis* 96: 384-410) where a 'prey unit' is taken as the mean weight of a small mammal of 20 gm; thus a rat weighing 100 gm equals five prey units.

Analysis of Tawny Owl pellets by number of individuals of each prey species and number of prey units (see text)

	Individuals		Prey units	
	Number	Per cent	Number	Per cent
Common shrew	6	5.0	3	2.4
Water shrew	1	0.8	¾	0.1
Short-tailed vole	20	16.7	20	13.6
Bank vole	12	10.0	12	8.2
Wood mouse	40	33.3	40	27.3
Brown rat	8	6.7	40	27.3
Starling	1			
Thrush sp.	4	5 4.2	5	3.4
Bullfinch	5			
Greenfinch	6	26 21.6	26	17.7
House Sparrow	15			
Beetle sp.	2	1.7	—	—
	120	100.0	146¾	100.0

A few fibrous pellets containing no bone or hair were found. Microscopic examination revealed the presence of earthworm chaetae and numerous very small grains of sand. These pellets are not taken into account in the table.

The food taken by different individuals will of course depend on the relative proportions of suitable prey in the habitat, but this pair seems to have taken an unusually high toll of birds, presumably from roosts.

M. A. MACDONALD.

Bee-eater in Ayrshire

A Bee-eater was seen by Lt.-Col. G. Borwick at Swindridge Muir, near Dalry, Ayrshire, from 14th to 18th May 1968. I watched the bird for about two hours on 18th and took the following description:

> Forehead from a distance looked yellow, but when closer appeared whiter; crown and nape reddish brown; ear coverts, throat and neck brilliant yellow, separated from breast by thin black neck band; black eyestripe from base of bill to nape; breast, belly and flanks dark turquoise; mantle reddish brown; scapulars apricot; lesser and median coverts light turquoise; greater and primary coverts reddish brown; primaries and secondaries dark turquoise; rump and tail dark turquoise; elongated central tail feathers and long pointed wings very noticeable in flight; bill at least as long as head, black, slender, decurved at tip; short dark legs; eye reddish.

The bird spent most of its time perched high in some chestnut trees, using this conspicuous vantage point for frequent sallies after insects. This is the first Ayrshire record of the species.

D. J. NORDEN.

Golden Orioles displaying in Kinross-shire

On the evening of 11th June 1968, while searching for a Blackcap's nest in a small plantation near the River Devon, about 1½ miles east of Dollar, I saw a pair of Golden Orioles.

The birds first appeared in a fast, shallow weaving dive which eventually brought them into a birch tree not more than 20 yards from me. I could only see the upper half of the male, but his bright yellow head and neck, black wings, and black tail with its yellow flashes, made identification clear beyond all doubt. The female was slightly obscured by the male, but in the evening light her green back and grey underside were distinctive, though I did not think that the streaking on her breast was as pronounced as some illustrations suggest. Both birds had strong-looking reddish-brown bills.

For a moment or two they sat looking around, and then began a very beautiful display. The male began by thrusting his head and neck upwards with a twisting motion against the side of the female's neck, each stroke taking perhaps 1½ seconds, with the head turned through about 90° along its longitudinal exis. The female's reaction was, at first, little more than a gentle rocking sideways of her head. After a brief pause the male began again, more vigorously this time, and soon the hen was responding fully by thrusting and rotating her head in time with his. Eventually she partially opened her bill, but made no sound that I could hear.

The display continued for a few seconds more and then stopped abruptly as if by mutual consent. The female then flew off towards the southeast, the male following shortly afterwards.

IAIN C. MUNRO.

(This is the first record for Kinross. The "fast, shallow weaving dive" no doubt refers to the typical aerial courtship-chasing of this species, as described on p. 83 of vol. 1 of Bannerman's *Birds of the British Isles;* but in a search of the more obvious places we have not found an account of the ensuing display described in this note.—ED.)

Rook hiding food

On the evening of 20th June 1968 an adult Rook landed on our small lawn, marched up to a flowerbed, and thrust a large beakful of food under a rose bush. It then made a mound of small clods of earth over the cache. I investigated after the bird flew off and found three finger-sized pieces of currant bun.

RONA S. HUNTER.

(Food hiding by various corvids is described in *Brit. Birds* 61: 228-229, 417-418, but there are few records of Rooks showing this habit.—ED.)

Nutcracker in Shetland

About 4.30 p.m. on 22nd August 1968 the police telephoned to tell me that a brown-and-white bird like a small crow was outside Lerwick Police Station. I found it in a small elder bush in the neighbouring garden, but all I could see through the leaves was the tail—dark with a white end—and I wondered if it was merely a Collared Dove. Then, as it moved, I saw the head side-on, almost as big as a Rook's, with a huge bill. Immediately I recognised it as a Nutcracker.

Hoping the bird would emerge onto a low wall, I focussed my camera while my wife approached from the rear of the bush. When she was less than six feet from it the bird flew forward the necessary yard. I took two pictures before it hopped with its large clumsy feet together and flew to a high wall. As it took off again it showed white under tail-coverts. The short, broad wings carried it straight off in strong flight.

Next day it was eating a House Sparrow when I found it in a thick clump of lupins near the same bush. Another twice it actually flew from the same elder, and each time it was carrying another House Sparrow. One was entirely eaten. The Nutcracker carefully pecked the bird's inside out as it held it

in its claws while perched in a sycamore. It also perched on low walls and on poles.

It was about Jackdaw size, but appeared more like an enormous plump Starling with much white about it. The big head was chocolate-brown on top, the face mostly white. Mantle and breast were brown, with very obvious white spots. The wings were blackish with a blue sheen, and the tail the same with a green sheen and a broad white band at the tip. From behind, the folded wings showed dark like a Hooded Crow's. There was a brilliant white area on the under tail-coverts. Bill and legs were black, and both were big and clumsy. The eyes were very big and dark. The bird did not call.

It was not seen after the 23rd. I was successful in getting several good photographs of the bird, and some of these are reproduced in this issue (plates 16, 19).

DENNIS COUTTS.

(This bird, apparently the only one found in Scotland in 1968, arrived at the beginning of the peak of a rather early (but see *Brit. Birds* 61: 349) and widespread irruption into Britain that began on 5th August and brought something approaching 200 Nutcrackers to England, especially East Anglia and Kent. Most were evidently of the usual Slender-billed race, the eruptive one, from east Europe and west Asia. The scale of arrivals in England is quite unprecedented, about twice as many birds as have been recorded in all time before. The birds were also recorded all over northern Europe, but full details are not yet available (*Brit. Birds* 61: 428, 473). Only three records are given in the *Birds of Scotland*, and there were only six in Britain in the ten years before 1968.—ED.)

Blackbird and Wren brooding Blackbird chicks

M. Jack informed me of a most unusual situation at a Blackbird's nest he had under observation during 1967.

On four occasions when he looked at the nest, which was in a shrub in his garden, he saw what appeared to be a pair of bright eyes peering out from beneath the sitting female. On the fifth occasion he investigated, and when the Blackbird left the nest he found a Wren sitting on five very young Blackbird chicks. The female Blackbird seemed to have taken all this in her stride, but the Wren was not seen at the nest again, though it had almost to be pushed off for the contents to be examined.

R. J. W. SHAW.

Rose-coloured Starlings in Berwickshire, East Lothian and the Outer Hebrides

David Bridgewater told me that he had seen an adult Rose-coloured Starling feeding with a flock of Starlings in a cut hayfield at Edrom Berwickshire, on 29th June 1967. He described the bird as having black head, wings and tail, and otherwise pink plumage, but he also mentions that it looked black-and-white in flight.

Crawford Smith saw what was probably the same bird in the same place on 25th July, with a large flock of Starlings, and again on 7th September.

W. M. LOGAN-HOME.

On 31st July 1967, and again on 4th August, I saw an adult Rose-coloured Starling at Ormiston, East Lothian. It was readily identified by its pink plumage and black head, wings and tail. P. J. B. Slater, who saw it on 1st August, adds that the bird showed a dark line on the scapulars parallel to the base of the wings.

I understand from local residents that this bird had been feeding with Starlings in the strawberry fields in this area since at least 30th June. Alistair Macdonald reports that it was even caught at a nearby aviary, but it escaped again. Everybody who saw the bird said it was very tame, and it was no doubt an escape. There are many bird fanciers in the Tranent area.

T. FORSYTH.

I had excellent views of an adult Rose-coloured Starling between Back and Gress, near Stornoway, on 2nd August 1967. It was feeding among cattle in longish machair in company with two Starlings, and later flew off and landed on the back of a grazing cow. The bird was pinkish-rose in colour, with black head, tail and wings, showing just a suggestion of a crest when perched on the cow. Its behaviour was similar to that of the two Starlings in every way.

LENNOX H. CAMPBELL.

(These three records have been accepted by the Rarities Committee, but Rose-coloured Starlings are imported in some numbers as cage-birds, and it becomes increasingly difficult to know whether any seen in Britain are truly wild birds.—ED.)

Arctic Redpolls in Shetland

On 19th February 1968 at Symbister, Whalsay, during a period of prolonged snow, I watched a redpoll feeding on

crumbs to within eight feet of my window. I was later able to watch it, with and without binoculars, down to four or five yards as it moved around between the ground and some small bushes.

It was a typical redpoll, although rather small in size, with a crimson forehead and black chin. The underparts were whitish, with fine dark streaks on the breast and flanks. The head with its whitish eyestripe and the upper back and shoulders were very pale, and together with very light, conspicuous wing-bars gave the whole bird a 'frosty' appearance when at rest. In flight, in perfect light, the wing-bars showed as a light area on the open wings, and the white rump was very conspicuous.

On 14th and 19th December 1965, also at Symbister, I watched a redpoll feeding within 100 yards of my home. Using 12 x 50 binoculars I was able to make notes and compare these with descriptions in the *Handbook,* and I identified this bird as an Arctic Redpoll It was very similar to the bird already described, but had a broader, more pronounced eyestripe, and whiter underparts with only a few dark streaks on the flanks. This bird seemed a little larger too, and at rest the white feathers of the underparts curling over the wing-edges gave it a very light appearance, with the wing-bars less obvious than in the 1968 bird. The white rump was again outstanding in flight.

I am familiar with Redpolls in Shetland—including Mealy Redpolls—and after examining skins am confident that both the birds described above were Arctic Redpolls.

J. H. SIMPSON.

(These birds have been accepted by the Rarities Committee as showing the characteristics of Arctic Redpolls, which, while they have been recorded from Fair Isle a number of times in autumn, have rarely been identified elsewhere in Shetland.—ED.)

Recent News

ANDREW T. MACMILLAN

Edinburgh birds. For a capital city of some 500,000 people, Edinburgh can provide unexpectedly exciting birdwatching within its boundaries. On 24th November a **Kingfisher**—now a rarity in Scotland, though it used to frequent the city—was found on the Water of Leith. Though it foiled most observers it was still there nearly two months later.

Numbers of **Great Crested Grebes** off Seafield are the largest

in the country, and there were over 500 at the turn of the year. Even higher numbers have been noted (*Scot. Birds* 3: 84).

The winter flocks of **Scaup** at the same place are famous, but usually much less than the 33,000 birds estimated by one observer on 22nd December or the 28,000 of another a fortnight later; such numbers are not readily counted and depend a lot on the state of the sea and how far out the birds are.

Goose counts. From M. A. Ogilvie of the Wildfowl Trust we have received a valuable summary of the counts of **Grey Lag** and **Pink-footed Geese** in Britain on 9th-10th November. There were about 60,000 and 65,000 respectively—all but some 1000 Greylags and 10,000 Pinkfeet in Scotland, and some 56,000 of them in Perthshire alone. Though the count of Greylags was up, there was possibly no great change in the number of either species. These figures follow two successive very poor breeding seasons. Flocks of Greylags included under 6% young birds (the least ever recorded), and flocks of Pinkfeet included about 11½% young birds (also the least ever), both following worst-ever percentages in 1967.

Whooper deaths. After heavy mortality last winter in the Blairgowrie and Coupar Angus area (*Scot. Birds* 5: 111), three birds, presumably unfit to migrate, spent the summer on the R. Isla. The local flocks of **Whooper Swans** have not exceeded 21 birds this winter, compared with over 100 in the three previous years, and there are again signs of something wrong with them.

Osprey deaths. In November 1967 a ringed young **Osprey** from the third Scottish eyrie was recovered in Spain near Seville (*Scot. Birds* 5: 172). From preliminary reports it seems that one of the 1968 brood from the same eyrie suffered a similar fate at the western end of the Pyrenees in Spain just before Christmas.

Green Sandpiper wintering. On the Bowmont at Yetholm a **Green Sandpiper** was present into 1969. Its behaviour was markedly different from that of autumn migrants in the area. When flushed it tended to zig-zag away low and pitch back into cover like a Jack Snipe (*cf. Handbook*). Probably a very few winter in Scotland each year, especially in Berwickshire, but recent news is lacking about the Duns area, for which there was a good series of records (*e.g. Scot. Birds* 2: 42, 264).

Irruption species. A few more reports of **Waxwings**, including a suggestion of a very small arrival at the very end of October and in early November, are all that have been notified so far. Further reports of Northern **Great Spotted Woodpeckers**

have come in, and in December a few of these were still to be found in Orkney and Caithness.

Reviews

Galapagos : Island of Birds. By [J.] Bryan Nelson. Foreword by H.R.H. The Duke of Edinburgh. London, Longmans, 1968. Pp.xxii + 338; map, 24 plates (57 photographs) and 56 line drawings. 22 x 15 cm. 50/-.

Islands always fascinate, and remote islands fascinate absolutely. Add to this a particularly interesting fauna, and the visits of Darwin more than a century ago, and the Galapagos archipelago becomes irresistible to naturalists.

When they came to the Galapagos Bryan Nelson and his wife June were no strangers to island life, having spent much of three years on the Bass Rock in the Firth of Forth studying Gannets. The team that solved problems of living and working on the Bass also solved the infinitely greater problems of living on a waterless, uninhabited, lava island in the tropics.

This book is an account of the behavioural and other adaptations of boobies, a frigate bird and an albatross to the particular problems that face them in surviving in a surprisingly variable environment. Other creatures, iguanas, sea lions and owls are discussed for good measure. Here and there through the book, but probably not enough for many people, the author writes of life on a desert island—of a home-made still that supplied up to one gallon of fresh water per day from the Pacific; of the irksomeness of routine jobs about the camp; of periodic severe depression; of the need for other people (not too far away and not too near either). Despite discussions about the need for other human company, when it came to the bit and a strange craft bore down on their solitude, they found it difficult sometimes not to disappear into the booby colony and avoid a meeting, a feeling that Fraser Darling admits to when he lived on Priest Island.

The prime reason for the visit was to study the behaviour of seabirds, particularly boobies. It is always rewarding to work with a group of related species because then differences and similarities in behaviour becomes more meaningful. So it is with Dr Nelson's observations on display, nesting success and feeding methods. The offshore feeders lay small clutches, and this is correlated with the need to transport food long distances; in contrast, the Blue-footed Booby lays 2 or 3 eggs and rears 2 or 3 young, because it has evolved a means of feeding in an inshore niche not used by other seabirds.

Dr Nelson tries on the whole to fit clutch size and brood size into the orthodox mould, namely that clutch size corresponds to the largest number of young that the parents can rear. This works well for some but less well for others; the Gannet on the Bass can rear two young successfully, but lays only one egg. The White Booby lays two eggs, and hatches both; but one young always kills the other not long after hatching, achieving, as the author says, a correspondence of brood size with food supply *in anticipation* of food shortage. Does this mean that aggressiveness in nestlings is selected for? More discussion would have been welcome.

Dr Nelson also compares two general approaches to field studies. First, there is the fellow who has a hunch and tries to demonstrate its

correctness. This the author suggests is fine if the hunch is correct. But surely 'hunch' is the same as hypothesis, and if a hypothesis is refuted one learns something. The second approach, followed by perhaps 80 per cent of field workers, including Dr Nelson, is to gather a lot of information and later to try and make some sense of it. He claims that this is a "fairly safe" way. It can be, but it is also fraught with dangers, for, since nature is complex, there will always be several explanations and no means of distinguishing the correct one. In fact the various explanations provide hypotheses which should then be tested.

This aside *Galapagos: Island of Birds* will be enjoyed by amateur and professional ornithologist alike for the wealth of behaviour description and biological information it gives and for the many excellent line drawings and photographs that illustrate it. If the study raises more problems than it solves, what better comment could one have on one's research?

J. D. LOCKIE.

Highland Year. By L. MacNally. London, Phoenix House, 1968. Pp. viii + 117; 32 plates (83 black-and-white photographs). 21¼ x 14 cm. 36/-.

This is a book the reader will go back to many times. Every page bristles with action and it is so painstakingly conveyed to us by means of the camera. The pictures should be studied prior to a first reading. They are diagrams and blueprints to the whole Highland landscape of deer, eagle and fox, with badger, Raven and the detested "Hoodie" taking their place along the fringe. There is, most of all, a natural quality in Lea MacNally's pictures. Not for him the hurried dramatic flight from nest or scurry from cover.

There is nothing verbose in the story. The months unfold in chronological fashion, while bird and mammal go about their business. The reader "drops in" on so many interesting little episodes. Man becomes a "peeping Tom."

Here then is a diary; the dates are with nature.

Most of all it is a story, told by a man who lives and works within sight of Loch Ness and Beinn Tee; behind him the Corrieyairack, General Wade's Road and the Monadhliaths.

Lea MacNally: 42 years of age, with more than 20 years of recorded field study—and yet the book is the antithesis of dogmatic generalisation.

This is not to say the book is not full of careful opinion: "It is a very dilatory or unobservant stalker who will let slip this entirely odious bird before she is successful in propagating her rascally race." A text book; a book for the animal and bird lover; MacNally points the way to simple, easily-affordable nature conservancy. Birds and animals involved together, with man intervening in the slightest possible fashion, in an effort to redress, where nature, for a time, has given free rein to the powers of production.

Lea MacNally's problems and his love of nature run hand in hand, as when he says: "Perhaps we should be thankful however; for if the roe rut and the red deer rut coincided one would not be able to enjoy the interest of both, whereas now this is possible. It is most unlikely, however, that this was taken into account when the universal scheme of things came into being, and so the puzzle remains." *Highland Year* itself is no puzzle. I hope it is the introduction to a Highland series. For too long this type of story has been written, expertly and efficiently, by marauding amateurs. We must welcome this study of Highland life by one of the resident professionals.

J. EUNSON.

Letter

SIR,

Golden Eagle calling

I was very interested to read Ian M. MacLean's account of a Golden Eagle calling in North Harris in April 1968 (*Scot. Birds* 5: 173).

On 22nd April 1965 I was looking for an eyrie in Mull when two eagles, an adult and an immature, appeared from behind a hill, soaring together and rolling and scrapping with talons lowered for much of the time. They were soon joined by a second adult and all three soared higher in widening circles until I lost them behind another hill. Shortly afterwards the adults returned and sailed slowly overhead until they were out of sight behind yet another hill. Throughout the whole of this action I heard repeated calling of the kind described by Mr MacLean—my notes refer to the calls as resembling the barking of a Great Black-backed Gull. I was uncertain how many birds were calling, but had the distinct impression that both adults were doing so and suspected that they were chasing off the immature bird.

I have mentioned this matter to several other observers who are familiar with eagles, and while most of them have heard birds calling in this way they all agree that it is an uncommon occurrence.

MICHAEL J. EVERETT.

(Mrs I. Rainier writes that in Perthshire in 1933 she saw two Hooded Crows drive a Golden Eagle from a Scots pine. As it left the tree and flew across the glen out of sight it called for about a minute with dog-like barks. Of the many eagles that she has seen this was the only one heard calling. Seton Gordon records that the eagle is usually silent "but in the excitement of courtship it sometimes utters a shrill yelping cry which can be heard at a distance of a mile or more" (*Birds* 2: 144).—ED.)

The Scottish Ornithologists' Club

SUMMER EXCURSIONS

Important Notes

1. Members may attend excursions of any Branch in addition to those arranged by the Branch they attend regularly.

2. Where transport is by private cars please inform the organisers if you can bring a car and how many spare seats are available. All petrol expenses will be shared.

3. Please inform the organiser in good time if you are prevented from

attending an excursion where special hire of boats or buses is involved. Failure to turn up may mean you are asked to pay for the place to avoid additional expense for the rest of the party.

4. Please bring meals as indicated (in brackets) below.

ABERDEEN

For all excursions, please notify Miss F. Greig, 9 Ashgrove Road, Aberdeen (tel. 40241, Ext. Old Aberdeen 342, 9 a.m.-5 p.m.) one week in advance.

Sunday 24th August. YTHAN ESTUARY AND LOCHS. Meet Culterty 10.30 a.m. (lunch).

Sunday 19th October. LOCH STRATHBEG (lunch).

AYR

Saturday 26th April. CULZEAN CASTLE, MAYBOLE (by kind permission of the National Trust for Scotland). Leader: S. L. Hunter. Meet Wellington Square, Ayr, 2 p.m. or car park, Culzean Castle, 2.30 p.m. (tea).

Sunday 25th May. HORSE ISLAND, ARDROSSAN (by kind permission of the RSPB). Leader: T. B. Kay. Meet Wellington Square, Ayr, 1 p.m. (tea). Boat fare 5s. There will be a maximum of 11 passengers and members must contact Dr M. E. Castle, 9 Finlas Avenue, Ayr (tel. Alloway 41828), at least 7 days before the excursion.

Saturday 14th June. BALLANTRAE AND GLENAPP ESTATES (by kind permission of the Earl of Inchcape). Leader: R. C. Walls. Meet Wellington Square, Ayr, 10 a.m. (lunch and tea).

Wednesday 18th June. AUCHINCRUIVE ESTATE (by kind permission of the Principal, West of Scotland Agricultural College). Leader: Dr M. E. Castle. Meet on drive near bus shelter at main gates of College on the Mauchline road 7 p.m. prompt.

Saturday 23rd August. ABERLADY BAY AND BASS ROCK (by kind permission of Sir Hew Hamilton-Dalrymple). Leader: A. G. Stewart. Meet Wellington Square, Ayr, 10 a.m. and sail from North Berwick 5 p.m. Cost approx. £1. This will be a long excursion (lunch and tea). Members must book seats at least 7 days before the excursion by contacting Dr M. E. Castle (address above).

Sunday 14th September. BARASSIE. Leader: Dr J. Begg. Meet Wellington Square, Ayr, 1.30 p.m. or the Gas Works, Barassie, 2 p.m.

DUMFRIES

Saturday 31st May. DALSCAIRTH AND KIRKCONNEL WOODS AND MERSE. Leaders: B. S. Turner and J. G. Young. Meet Ewart Library, Dumfries, 4 p.m.

Sunday 22nd June. SOUTH KIRKCUDBRIGHTSHIRE. Leader: A. D. Watson. Visit to a map square to search for breeding birds for the BTO Atlas project. Meet Ewart Library, Dumfries, 1.30 p.m.

Sunday 5th October. HOLY ISLAND AND BUDLE BAY. Leader: R. T. Smith. Meet Ewart Library, Dumfries, 9.30 a.m. Own transport arrangements.

DUNDEE

All excursions by private cars, leaving City Square, Dundee 9 a.m. except for 16th/19th May and 29th June. Details for these should be obtained from the Branch Secretary, Miss J. Stirling, 21 Johnston Avenue, Dundee.

Friday 16th to Monday 19th May. WHITEBRIDGE HOTEL, INVERNESSSHIRE. Weekend excursion.

Sunday 1st June. KINNAIRD ESTATE (subject to permission from the Earl of Inchcape).

Sunday 29th June. ISLE OF MAY.

Sunday 20th July. LOCH ORDIE AREA.

Sunday 24th August. MONTROSE BASIN.

Sunday 21st September. EDEN ESTUARY.

EDINBURGH

Saturday 3rd May. ABERLADY BAY NATURE RESERVE (spring migrants). Leader: K. S. Macgregor. Meet Timber Bridge 2.30 p.m. (tea).

Saturday 10th May. WESTWATER RESERVOIR, WEST LINTON. Joint excursion with the Scottish Wildlife Trust. Leader: W. Brotherston. Meet Gordon Arms Hotel, West Linton, 2.30 p.m. (tea).

Sunday 25th May. THE HIRSEL, COLDSTREAM (by kind permission of Sir Alec Douglas-Home). Excursion by private cars, leaving Edinburgh from square behind National Gallery 10.30 a.m. for Hirsel at 12 noon (lunch and tea). Applications by 17th May to J. A. Stewart, 109 Greenbank Crescent, Edinburgh 10 (tel. 031-447 4210), stating number of seats required or available.

Sunday 8th June. ST ABBS HEAD. Joint excursion with the Scottish Wildlife Trust. Leader: David Grant. Excursion by private cars meeting St Abbs 1 p.m. (lunch and tea). Applications by 24th May to David Grant, Hawkslee Farm, Newtown St Boswells (tel. St Boswells 2209), stating number of seats required or available.

Saturday 14th June. ISLE OF MAY (numbers limited to 24). Leader: Alastair Macdonald. Excursion by private cars. Boats leave West Pier, Anstruther, 11 a.m. prompt, returning by 6 p.m. (lunch and tea). Cost of boat approx. 15s. Applications by 6th June to J. A. Stewart (address above) stating number of seats required or available.

Saturday 12th July. BASS ROCK (by kind permission of Sir Hew Hamilton-Dalrymple). Leader: J. H. B. Munro. Numbers limited to 60. Boat leaves North Berwick Harbour 2.30 p.m. returning about 7 p.m. (tea). Tickets, approx. 12s, will be purchased on the boat. Applications by 28th June to Mrs J. H. B. Munro, 9 Capelaw Road, Edinburgh 13 (tel. 031-441 2381).

Saturday 13th September. ABERLADY BAY NATURE RESERVE (autumn migrants). Leader: K. S. Macgregor. Arrangements as for 3rd May.

GLASGOW

Saturday 17th May. SQUARE NN 31, HEAD OF LOCH LOMOND. Survey of area for BTO Ornithological Atlas project. Applications by 1st May to local organiser: J. Mitchell, Dubhaniel, Gartocharn, near Alexandria. Please state if spare car seats available.

Saturday 31st May. AILSA CRAIG. Applications by 15th May to Mrs Draper, 6 Southview Drive, Blanefield, by Glasgow.

Saturday 7th June. LITTLE CUMBRAE (by kind permission of Little Cumbrae Estates Ltd). Applications by 24th May to Mrs Draper (address above).

Wednesday 18th June (6.30 p.m.) and Saturday 28th June (2.30 p.m.) HORSE ISLAND (by kind permission of the RSPB). Applications by 1st June to Mrs Draper (address above).

Saturday 5th July. BASS ROCK (by kind permission of Sir Hew Hamilton-Dalrymple). Numbers limited to 12 per boat. Boats leave North Berwick Harbour 12 noon, returning approx. 6 p.m. (tea). Applications by 20th June to Mrs Draper (address above).

INVERNESS

Saturday 3rd May. MUNLOCHY BAY HERONRY. Leave Ness Bank Church, Riverside, Inverness, 2 p.m.; North Kessock 2.30 p.m.

Sunday 11th May. INVERLAEL FOREST, LOCH BROOM, ULLAPOOL (by kind permission of Mr H. A. Maxwell, Forestry Commission). Leave Station Square, Inverness, 9.45 a.m.

Sunday 1st June. SPEYSIDE, CAIRNGORMS. Leave Station Square, Inverness, 10 a.m.

Sunday 15th June. SOUTH SUTOR, CROMARTY. Seabird Census. Leader: C. G. Headlam. Leave Station Square, Inverness, 10 a.m.

ST ANDREWS

Applications, not later than one week before each excursion, to Miss M. M. Spires, 4 Kinburn Place, St Andrews (tel. 523). Bring picnic meals.

Sunday 18th May. ST SERF'S ISLAND, LOCH LEVEN (by kind permission of the Nature Conservancy). Numbers limited. Leave Kinross Pier 11 a.m.

Saturday 24th May. KILCONQUHAR LOCH. Meet North Lodge 2 p.m.

Saturday 7th June. ARBROATH CLIFFS. Cars leave St Andrews Bus Station 1.30 p.m.

Sunday 15th June. GLEN ESK. Cars leave St Andrews 9.30 a.m.

Saturday 5th July. TENTSMUIR. Cars leave St Andrews 2 p.m.

STIRLING

For details of excursions apply to Branch Secretary, T. D. H. Merrie, West Faerwood, Stirling Road, Dollar, Clackmannanshire.

GLASGOW BRANCH ANNUAL DINNER

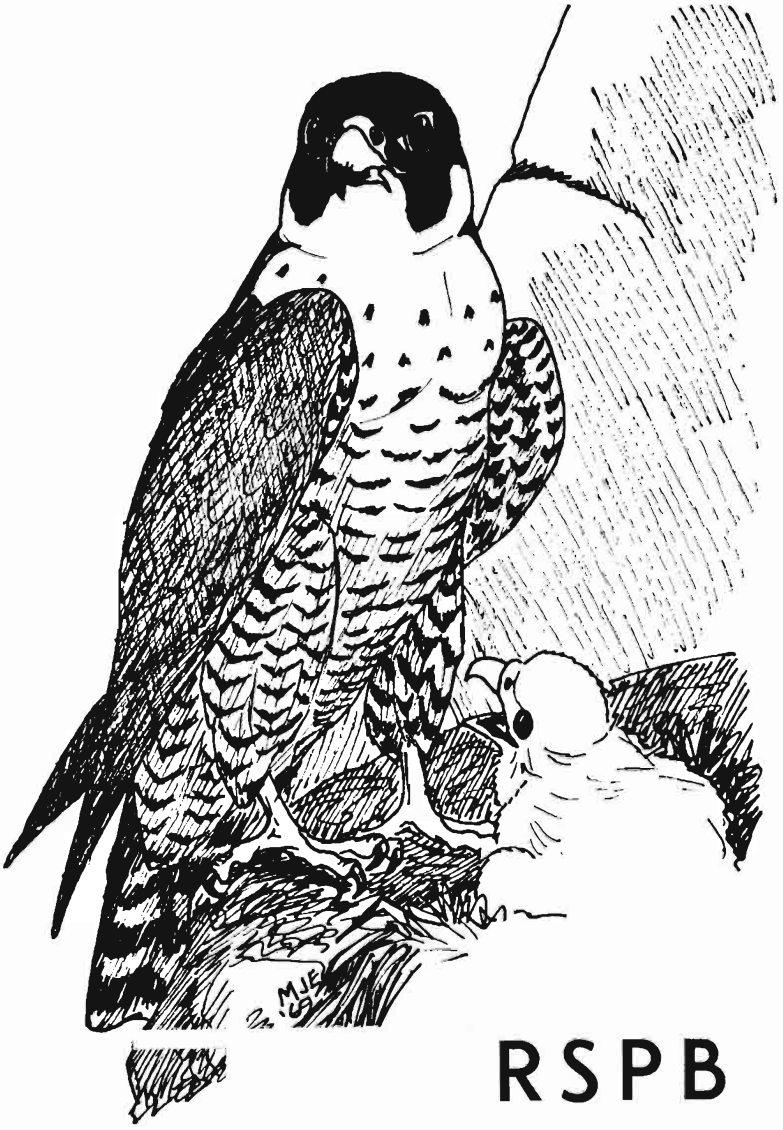
The Annual Dinner of the Glasgow Branch will be held in the new University Refectory, Hillhead, Glasgow, on Friday 28th March 1969 at 7.30 for 8 p.m. Tickets, 27/6 (inclusive of a glass of sherry and a glass of wine), obtainable from the Branch Secretary, Mrs Draper, 6 Southview Drive, Blanefield, by Glasgow. Guest of honour: Mr C. K. Mylne.

EDINBURGH BRANCH ANNUAL DINNER

The Annual Dinner of the Edinburgh Branch will be held in the Ettrick Hotel, Ettrick Road, Edinburgh 10, on Monday 14th April 1969 at 7 for 7.30 p.m. Tickets, 26s, obtainable from John Murray, 127 Marchmont Road, Edinburgh 9, by 30th March. Numbers limited to 70.

GLASGOW BRANCH—CHANGE OF LECTURE DATE IN APRIL

Will Glasgow members please note that as Monday 7th April is a public holiday the Branch lecture to be given by Mr D. R. Saunders will now be on **Thursday 10th April** instead. The place and time will be the same as before.



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