NORTH-EAST GREENLAND EXPEDITION 1956

by James Goodhart and Thomas Wright

INTRODUCTION

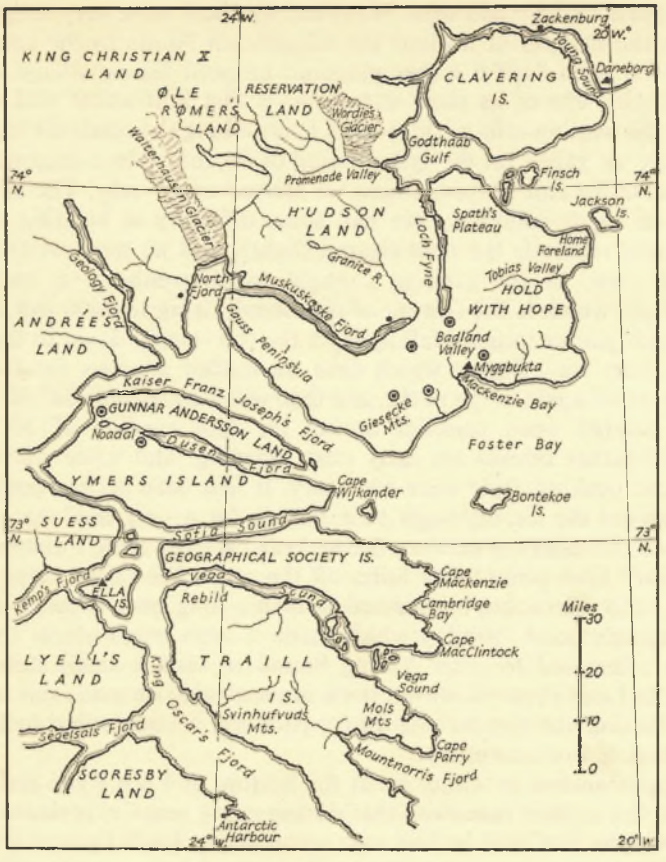
THE object of this expedition was to visit the Hold-with-Hope area of the North-east Greenland coast to discover the areas frequented in summer by Pink-footed (*Anser brachyrhynchus*) and Barnacle Geese (*Branta leucopsis*), to obtain an estimate of the numbers of each species present and to ring as many of them as possible.

By ringing Pink-footed Geese it was hoped to add more detail to the already extensive knowledge of the movements and population numbers of this species obtained by the activities of the Wildfowl Trust. In the case of the Barnacle Goose, some very interesting recoveries have been obtained from birds ringed in Jameson Land in 1955, and it was hoped to acquire more knowledge of their movements—and particularly wintering areas—by ringing birds that breed on Hold-with-Hope, which is farther north than Jameson Land.

The biggest problem to be overcome is landing on Hold-with-Hope in time to catch the geese while they are still flightless. The sea journey is usually made impossible until the last few days of July by the presence of a wide strip of pack-ice off the coast that is brought down from the polar pack. This polar pack-ice drifts slowly down the Greenland coast through the Denmark Strait into the North Atlantic. Even in late July it is a most uncertain business penetrating this ice-belt. The force and direction of the wind may pack it tightly, making it quite impenetrable for days on end, whilst favourable conditions result in wide open-sea lanes being formed.

Few ships penetrate through to the coast of North-east Greenland during the late summer. The odd Danish expedition ship contacts and relieves the various Danish stations up and down the coast, and one Norwegian ship, chartered by the Norwegian Polar Institute in Oslo, makes an annual visit to the Hold-with-Hope area. The Norwegian Meteorological Station at Myggbukta is relieved and re-supplied for the following winter. A few Norwegian trappers who have spent the winter and spring months trapping and shooting Arctic Fox, Polar Bears and Seals are also relieved. These trappers normally spend one or two winters in Greenland, and they are brought back by the Norwegian Expedition ship when others are landed.

We were most fortunate in being offered a passage on this Norwegian Expedition relief ship, which leaves Aalesund in Western Norway some time during the latter half of July. The exact date of departure depends to some



Part of N.E. Greenland

extent on ice conditions off the Greenland coast, and in a bad year the departure may be delayed some days. A special deckhouse with six bunks had been constructed on the port side by the forward hatch for the expedition, and these special arrangements stress the extent to which we were dependent on this generous Norwegian co-operation.

The expedition, which was led by Dr Thomas Wright from Marlborough College, consisted of five Englishmen and one Dane, Arne Schiøtz, from Copenhagen University. James Goodhart and Paul Carslake, two Cambridge University undergraduates, had been in Spitzbergen in 1952 and 1954 on similar missions, and the party had therefore a good deal of previous experience in ringing geese in the Arctic.

GENERAL ACCOUNT

The party arrived at Aalesund from Bergen by coastal steamer on 21 July; after a brief visit to the agents of the vessel, it was apparent that the boat—a modern wood-built sealer of 270 tons called the *Polarbjorn*—would not be leaving for three or four days at the earliest. This was a great disappointment, as every day lost meant that the chance of catching the geese grew smaller, especially if it had been a non-breeding year as had seemed very likely from the

weather reports that we had seen. However, we spent three very delightful days walking in the mountains around the magnificent fjords to the south-east of Aalesund; the town itself is a very pleasant, unspoilt fishing village well worth a visit by itself—one of its great attractions is that Kittiwakes nest on a great number of the window-sills of the houses overlooking the small fishing harbour.

Eventually we sailed on the late evening of 26 July into a reasonable swell, and set course for Jan Mayen, where we arrived on 29 July. The ship had no radar and in foggy conditions we had some difficulty in locating the island, but then quite suddenly the mist cleared slightly and we were rewarded with a spectacular view, in the evening sunlight, of Beerenberg—a mountain of volcanic origin which is the feature of the island, rising to 7400 feet above sea-level and with glacier tongues falling from the top steeply down to the sea.

After a short stay, during which time we landed supplies for the weather station, we set off again to the north, and then when on latitude 74° N. we turned west and entered open pack-ice during the late evening of 30 July. We encountered rather thicker ice early next morning, and some short spells of breaking and pushing aside were necessary. It had been perfect sunny weather since we entered the ice, although cold enough for a very thin veneer of ice to be formed on the calm sea between the pack-ice. We saw quite a number of seals, and one Ivory Gull some thirty miles off the coast. We raised Cape Herschell during the early afternoon, but seemed to take a long time to reach it owing to the astonishingly good visibility which made it seem much nearer than it was.

We first attempted to enter Young Sound to visit a small station before continuing to Loch Fyne. However, thick impenetrable ice made this impossible, and, after butting our way through heavy pack-ice, we proceeded to Loch Fyne first, which suited us admirably.

We dropped anchor in winter ice at the bottom of Loch Fyne and spent the night there; the captain remarked that during many years' experience in Greenland this was the first time he had seen winter ice in Loch Fyne at that time of year, and there now seemed no doubt that it had been an exceptionally bad spring.

We left the *Polarbjorn* in brilliantly clear weather and went up Loch Fyne in two lifeboats; we had some trouble breaking through the rotten winter ice, but after a journey of six hours we arrived at the trapper's hut at the head of Loch Fyne. On the way we saw 14 Barnacle on a grassy slope by the shore which flew strongly away as we approached—this was a very great disappointment, as it now seemed almost certain that it had been a non-breeding year. We landed and set off to the south, carrying enough food for six days. We soon saw that this northern end of Badlanddal was very suitable for geese; we then saw 9 adult Barnacle on a small pool, so we set up the nets and set off with the object of rounding them up. Quite soon one of the party disturbed a flock of about 100 Barnacle, which had been concealed behind a low sand-cliff at the side of a large lagoon, and away they flew, baying and calling, to settle again on the other side of the lagoon. The next day we crossed the sandy waste to the west side of Badlanddal and then, after pitching camp, we walked northwards into the area between Loch Fyne and Muskox Fjord. Quite soon we came on a small round lake—probably a kettle-hole—on which there were some 30 Pinkfeet; 15 of them flew away as we came in sight and about 10 more swam quickly to the edge of the lake and ran away over the tundra before we could surround the lake. However, 6 remained on the water; the nets were erected, the rubber boats inflated and the drive started. When these 6 geese were cornered at one end of the

pool, 5 of them flew away, leaving 1 which immediately dived and swam under the boats, surfacing about 30 yards away.

On the next day (3 August) we walked south down the west side of Badlanddal and pitched camp at the north end of the Vestersletten. The mosquitoes were proving very troublesome, and we always found it wise to camp away from water and in an exposed place in order to obtain all the benefit that was possible from the gentle winds that were blowing. We then split into three parties of two and thoroughly explored the Vestersletten; between us we saw at least 310 Pinkfeet (but only three families) and 70 Barnacle—and here again there was much the same story of non-breeding, as there was only one family. The next day we caught this family, which consisted of one adult and three young. As we approached the lake 18 adult Barnacle flew off, and we had no difficulty, by using the boats, in driving the 4 geese into the nets.

It now became quite clear to us that it had been a virtually complete non-breeding year, and that there were going to be very few geese that were catchable in the 130 square miles that we had already covered, so that we would achieve very little by remaining in the area for a further fortnight as had been arranged with the captain of the *Polarbjorn*. By good fortune we knew that the *Polarbjorn* would probably call at Myggbukta Radio within the next two days, so we struck camp and walked in three parties of two to Myggbukta Radio. As far as the geese were concerned, it was much the same story—in the pool-studded area of southern Badlanddal we saw over 200 adult geese, all of which were flying strongly together with 24 young Pinkfeet and a few attendant adults; these latter—although not chased at all—were last seen disappearing in a northerly direction, and were finally visible only through binoculars and they were still running fast! We drove this enormous area of marsh and lagoons the next day, but we drew a complete blank.

Whilst we were at Myggbukta one of the trappers who was there told us some interesting facts about the trapping. The previous winter had been a very poor one, and the average number of Arctic foxes caught was about 50 per trapper. In a good year the number may be more like 150. The foxes depend on the small rodent, the lemming, which is their main food. Every four years or so the population of the lemming reaches a maximum, and the numbers then quickly tail off to a minimum. When there is a large number of lemming there are many foxes, but as the lemming decrease so do the foxes. Each trapper has a large coastal beat. He may have as many as 24 small huts each ten miles or more apart. Over the area there may well be as many as 150 fox-traps. He travels from hut to hut by Nansen sledge pulled by a team of six or eight Husky dogs. On his way he visits each trap and resets it if necessary.

The trap consists of a flat wooden structure about 3 feet square. This is inclined and set in the inclined position by means of three pieces of wood fitting into notches and delicately balanced. On one of the pieces of wood is placed the meat bait, which rests quite near the hinge of the main wooden plate and underneath it. On top of the wood are placed many heavy stones weighing perhaps as much as 2 hundred-weight. When the fox pulls at the bait the great weight collapses on to his neck and kills him instantly.

A few years ago a trapper could expect to get up to 100 kroner (£5) for a good white fur, but today he will get only about 30 kroner owing to changes of fashion.

In years when there are many lemming, snowy owls are also very common. As many as ten have been seen at once sitting on the radio aerial at Myggbukta, but this year, unfortunately, we saw none.

The trappers feed their dogs on seal meat, dried fish or musk ox. Supplies of dried fish are left by the expedition ship when it visits the station in the summer. Seals are shot during the autumn, winter and spring, and the meat forms a most important source of dog food. Musk ox are very hardy, large and shaggy animals, and they are increasing steadily. They feed on vegetation and can only thrive in countries where the winter is severe. In West Greenland, where attempts have been made to introduce them, they cannot survive the winter effectively. This is due to the fact that periodical mild spells of weather are likely to occur at any time. These partially thaw the snow, which soon freezes again. The firm, hard crust formed prevents the oxen from nosing their way through to the vegetation below and as a result they die of starvation. In Spitzbergen, where they are able to maintain themselves, periodical mild winters result in serious checks on the population.

Wild life is protected in East Greenland by the Danish authorities, and the regulations regarding the musk ox vary from year to year according to current reports on the status of the animal. Last year the trappers were allowed to shoot six. This year the number was increased to ten, but on condition that they were all males.

The trapper depends very much on the meat for his own personal needs.

The musk ox is, generally speaking, a docile creature, and if treated with respect is quite harmless. They usually wander about in family groups, and it is the lone bull which can be a little aggressive if disturbed. On one occasion two of us were moving camp when we came across a small family of three standing in our path on the shores of a large lake. In fact, an ideal position for a photograph.

The following extract from a diary describes what ensued:

'We did not bother to remove our heavy packs, as we were so confident about the harmless nature of the animals. As usual, on our approach the bull took up his stance in front of the family and stood eyeing us, quietly rubbing his nose against a large near-by stone. We must, we thought, get one really good close-up. Arne stepped in front of me and was little more than 8 or 10 yards from the bull, with me just behind. I thought I detected an aggressive look in the bull's eyes, and just as I held up my camera to get him in view there was a sudden scuffle. The bull snorted and charged. Arne turned quickly and stepped behind me. If only I had stayed composed for a fraction of a second I should have had a bright picture. I did not. In turning I overbalanced, and my pack shot over my head and became entangled in the camera and binocular straps, pinning me helplessly to the spot. Pots, pans and other bits and pieces loosely held on the pack clattered to the stones as they were scattered. There I was, with my back to the bull, completely helpless, unable to do more than stagger a few paces and at his mercy. All this took place in a split second. Meanwhile, the bull had advanced rapidly six paces only and was standing there just behind me staring incredulously. With difficulty, and help from Arne, I removed the pack and retreated. Everything was strewn in front of the bull's nose. He stood motionless, uninclined to move an inch. We walked slowly away, and when we were about a quarter of a mile from the family they turned tail and fled at top speed along the shore of the lake, led by the bull, and disappeared up the mountain.

'This incident certainly gave us a shake. We returned to collect our goods and chattels, and moved on with a little more respect for the musk ox than we had before.'

We discovered from the captain of the *Polarbjorn* that the spring comes

later on the coast because of the cooling effect of the pack-ice, so he suggested that we might meet with more success in one of the inner fjords; we decided to go to Noadal, which is an undulating area that joins Gunnar Anderson's Land with Ymers Island, and lies between the head of Dusens Fjord and Blomster Bay. Five members of the expedition spent from 7 to 11 August in this very pleasant area, and made a thorough survey of the wild life in it; they saw 30 Pinkfeet and about 52 Barnacle, including one family of three which promptly swam out to sea.

Meanwhile the remaining member of the expedition, James Goodhart, continued with the *Polarbjorn* along the east side of Ymers and Traill Islands, and was eventually halted for a day in thick fog and bad ice conditions. The next day the boat entered King Oscar's Fjord, and he landed at Antartiskhavn, where a mixed flock of 14 Pinkfeet and 38 Barnacle—all adults—was seen. The next day he landed at Holms Bay. A small flock of adult Pinkfeet was seen up the Kampelv and about a mile from the sea. The next day the *Polarbjorn* continued north, passed Ella Island and into the Antarctic Sound, and the expedition was reunited again in Blomster Bay. There were a great number of large icebergs in the fjords in this area which, together with most spectacular geological formations and magnificent fjord scenery and high, steep mountains, made our stay in Antarctic Sound one of the most memorable of our time in North-east Greenland.

We spent the next two days visiting Brogetdal and Muskox Fjord, before steaming back down the Kaiser Franz Joseph Fjord to Cape Broer Ruys, which is some fifteen miles east of Myggbukta. Here we split into two parties: one walked to the mouth of the Glommen and the other walked round the Ugle-hojene and had an excellent view to the north of the large, lake-studded area of the Ostersletten—it looked a most suitable area for geese. During our stay here we saw 380 adult Pinkfeet and 80 adult Barnacle—but only six families of young geese.

The *Polarbjorn* picked us up on 15 August and we went north and up Young Sound to Zackenburg, and then on north again in what proved to be an abortive attempt to drop stores at Cape Maurer on the east side of Kuhn Island; however, ice blocked our way, and we had to return and drop the supplies at Vandenoes, which is the south-eastern point of Sabine Island. We then turned south and arrived at Mountnorris Fjord on the evening of 19 August; such ornithological literature as there is about this area indicated that there were thought to be no geese on Traill Island, but inland from the head of Mountnorris Fjord we saw 187 adult Pinkfeet and 85 adult Barnacle; there were also indications that a considerable number of geese had been visiting the seashore in that area.

We left the Greenland coast and set course for Aalesund on 20 August, and it seemed that the brief Arctic summer was drawing rapidly to a close because, after experiencing three weeks of perfect, calm, sunny weather, we left in a severe blizzard. At first we were in scattered pack-ice and a few bigger bergs, but early the next morning we encountered close pack-ice and our progress was much slower until we were finally free of the ice late on the evening of 21 August. We had seen a few Kittiwakes and Fulmars over the pack, but in some places there were literally thousands of Little Auks feeding in the calm sea spaces between the pack-ice.

During our time in Spitzbergen we had noticed how few birds—other than geese—there were. We found this to be even more pronounced as far as this part of Greenland was concerned. A list of the species seen appears in Appendix I.

Records of Pink-footed and Barnacle Geese seen

The trappers and others who stay up there all the year round gave us many reports of geese in various areas; no mention has been made of any of these. It must be emphasised that a great deal of attention was paid to making sure that no well-grown young were overlooked in the goose flocks.

The areas visited were as follows:

Area between Loch Fyne and Moskusokse Fjord

East side:	126 Barnacle.	No young.
West side:	70 Pinkfeet.	No young.
	154 Barnacle.	No young.

Southern Badlanddal

180 Pinkfeet.	24 young which, although not being chased, were last seen going at great speed to the north until they were visible only through binoculars.
40 Barnacle.	No young.

Vestersletten

310 Pinkfeet.	One family of five and two of six.
70 Barnacle.	One family of three.

Southern Ostersletten (to include the two valleys coming up from Foster Bugt)

380 Pinkfeet.	Three families.
80 Barnacle.	Parties of five and twelve young (? three families).

Noadal

This was not an easy valley in which to count geese accurately, and the numbers given below are minima.

30 Pinkfeet.	No young.
52 Barnacle.	One family containing three goslings.

Brogetdal

The light was very bad during the visit to this valley, and the following are essentially estimates.

200 Pinkfeet.
35 Barnacle.

Mountnorris Fjord

The literature on this area had indicated that there were no geese on this island.

187 Pinkfeet.	No young.
85 Barnacle.	No young.

Antartiskavn

14 Pinkfeet.	No young.
38 Barnacle.	No young.

Some Observations and a Discussion on the Phenomenon of Non-breeding in the Arctic

The observations made by a British expedition in Jameson Land and also conversations with the staff at Myggbukta Radio suggest that 1955 was a good breeding year for both Pink-footed and Barnacle Geese. We know that 1956 was a very bad breeding year for both these species over a considerable area of

the coast of North-east Greenland; in fact, out of some 700 potential breeding pairs of Pinkfeet there were 12 families, and similarly with the Barnacle—340 potential breeding pairs and 5 families. While it is realised that some of the 'adults' may have been sexually immature, this is nevertheless a very small breeding percentage.

The suggestion has been put forward in the past that lack of snow-free ground when the birds arrive is the reason for the phenomenon of non-breeding. It seems that an enforced break in the breeding cycle, due to lack of a suitable nesting site, is sufficient to dull the breeding urge so that no breeding will take place that year even if subsequently suitable conditions prevail.

It has been most interesting to study the meteorological records from Myggbukta Radio between 10 May and 15 June. In 1955 a little ground became free of snow on 15 May, and this was a few days before the geese arrived; by 9 June half the ground was free of snow. In 1956 there was *no snow-free ground at all* until 14 June. The temperature comparison between the two years is also interesting: 1955 was distinctly milder with night temperatures mostly above freezing after 26 May, while in 1956 the night temperatures were always below freezing until the end of the third week in June.

The main question that remains to be answered is the critical date for the ground to be partially free of snow if there is going to be a good breeding year. Meteorologically 1955 and 1956 provide a great contrast and, as the geese usually arrive about 17 May, it may well be that 20 May might be the critical date for some of the ground to be free of snow. It would seem that expeditions contemplating goose-ringing in this area would be well advised to telegraph Myggbukta Radio on 20 May to ascertain the snow cover before deciding whether to continue with their plans or not.

However, it may be recorded that the three young Barnacle that we caught on 4 August were quite well advanced, as nearly all their down had been replaced by feathers; this would indicate that this pair started breeding very soon after their arrival.

A small island some miles off the coast in Mackenzie Bay is usually a tern colony. However, no terns bred there in 1956, but their place was taken by three pairs of Pinkfeet. The staff at Myggbukta Radio said that they had never known this before, and it is suggested that the geese used it because, being in such an exposed position, the wind kept some of the ground free of snow.

As may be seen from our notes on other species (Appendix I), most of them had bred to a small extent if at all. In the case of the King Eider, which seems to have bred quite well, all the young that we saw during the first two weeks of August had only been hatched a short time; it seems possible that an interruption in the breeding cycle had less serious effects on the year's breeding success than was the case in other species. The Eider also bred to some extent, and the same may be true of this species.

All the other ground nesters only bred to a very small extent and the few divers that bred also had very small (and therefore late) young. The non-breeding of the skuas cannot be attributed definitely to the snow cover, as it was not a lemming year, which may have considerable bearing on the fact that they did not breed.

The Snow Bunting—the only hole-nesting species—had a good breeding year and the young were well advanced. This seems to be good evidence that it was lack of snow-free ground at the end of May which either held up or prevented the breeding of the other species.

ACKNOWLEDGMENTS

We are indebted to many individuals who offered continual help and encouragement during the planning of the expedition and to many firms who generously contributed stores either gratis or at very reduced prices.

The Norsk Polar Institute in Oslo very kindly agreed to take us with their annual expedition to North-east Greenland, and without their initial promised help the detailed planning of the expedition would never have taken place. The leader of the Norwegian Expedition, Captain Giaever, always did everything in his power to help during our stay in Greenland, and we feel especially indebted to him for the sympathetic way in which he co-operated when our plans had inevitably to be changed.

The Danish Greenland authorities, the University Museum staff in Copenhagen, and Dr Finn Salomensen all helped us a great deal, and during the whole planning of the expedition every assistance was given to us.

On the financial side we received grants from The Wildfowl Trust, The Royal Society, The Gilchrist Educational Trust and Esso Petroleum Ltd. To all these and many more we are most grateful.

Postscript—August 1957

The hazards of the ice off the Greenland coast have once again been emphasised this year when the Norwegian ship *Polarbjorn*, on its annual expedition to North-east Greenland, has been reported trapped and severely damaged in the ice somewhere near the Hold-with-Hope area. The ship was abandoned and the crew taken off by helicopter.

APPENDIX I

Notes on Bird Species other than Geese seen during our time in North-east Greenland

GREAT NORTHERN DIVER (*Colymbus immer*)

1 August. One bird seen on two occasions at the southern end of Loch Fyne. On both occasions the bird circled high above us and then made off to the west.

9–11 August. A pair were seen with two small chicks on a small lake near Blomsterbukten on Ymers O.

RED-THROATED DIVER (*Colymbus stellatus*)

We found this species to be a common bird in all the areas that we visited. We saw no chicks at all except in Badlanddal, where one pair had two quite small young on 2 August. We saw them mostly in separate pairs except in the Noadal area, where there were groups of up to seven birds in the air at one time.

LONG-TAILED DUCK (*Clangula hyemalis*)

4 August. Seven adults in eclipse plumage seen on a small pool between the Mackenzie River and Myggbukta Radio.

6 August. A few birds seen in Dusens Fjord.

8 August. Our only breeding record—two young and one adult in Noadal.

EIDER (*Somateria mollissima*)

31 July. A party of eleven males sitting on winter-ice near Finsch Oer in Gael Hamkes Bugt.

17 August. At Germaniahavn there were eight flocks near the shore, and each consisted of between three and four females and four and six young.

We have no other breeding records, but adults were seen at Kap Petersen, Loch Fyne, Brogetdal and Mountnorris Fjord.

KING EIDER (*Somateria spectabilis*)

3 August. In Vestersletten seven females and four young were seen on a lake.

5 August. On a small pool near Myggbukta there were two females and eight young.

14 August. In Ostersletten a female with three young.

PTARMIGAN (*Lagopus mutus*)

7 August. One seen on high ground south of Noadal.

This was the only occasion that we went up into the mountains, which is the reason for this single record.

RINGED PLOVER (*Charadrius hiaticula*)

This was the commonest wader and was found in the most marshy areas. In the very dry and sandy areas in eastern Badlanddal it was the only bird present. About thirty pairs were seen on a ridge 600 feet above sea-level south of Noadal. The general impression gained was that most of them were not breeding and, in fact, we only found four pairs with one young each.

TURNSTONE (*Arenaria interpres*)

1 August. One seen to chase a Long-tailed Skua in north-east Badlanddal.

2 August. A pair with one young in north-west Badlanddal.

4 August. A pair around the small pools between the Mackenzie River and Myggbukta Radio.

18 August. Seven on the shore near Kap Herschell.

19 August. A few on the shore at the head of Mountnorris Fjord.

DUNLIN (*Calidris alpina*)

5 August. A pair seen round the pools near Myggbukta Radio.

9 August. One in Antarctiskhavn consorting with a Ringed Plover.

10 August. Four seen up the Karupelv from Holmes Bay.

SANDERLING (*Crocethia alba*)

1 August. One in north Badlanddal.

3 August. A few seen in the Vestersletten.

11–13 August. Seen in Brogetdal.

19 August. A number seen inland from the head of Mountnorris Fjord.

ARCTIC SKUA (*Stercorarius parasiticus*)

1 August. One seen in Loch Fyne area.

5 August. One seen around Myggbukta Radio.

LONG-TAILED SKUA (*Stercorarius longicaudus*)

This species was very common in all areas visited except Noadal. We did not see any young, nor was there the slightest indication that they were breeding. It was quite usual to see four or six together roaming the countryside.

IVORY GULL (*Pagophila eburnea*)

30 July. One seen in the ice about twenty miles east of Kap Herschell.

GLAUCOUS GULL (*Larus hyperboreus*)

Seen in small numbers in all areas visited.

ARCTIC TERN (*Sterna macrura*)

This species was seen quite frequently throughout the area, usually near the coast.

1 August. Present in Loch Fyne; some birds perched on small pieces of winter-ice. One pair may have been breeding.

10 August. Many seen around small island off Kap Petersen.

12 August. At least 120 feeding in the muddy water close to the face of the Walters Hausen Glacier.

WHEATEAR (*Oenanthe oenanthe*)

7–11 August. Several present in Noadal, including some young birds.

12 August. One in Brogetdal.

REDPOLL (*Carduelis flammea*)

9 August. One pair seen in Noadal.

LAPLAND BUNTING (*Calcarius lapponicus*)

19 August. A young bird seen inland from the head of Mountnorris Fjord.

SNOW BUNTING (*Plectrophenax nivalis*)

This species seems to have had a reasonable breeding season, as most of our records are of family parties or groups of family parties.

7–11 August. Numerous in Noadal.

12 August. Present in Brogetdal.

15 August. At least 60 in Dyraelv on Hold-with-Hope.

19 August. A pair inland from Mountnorris Fjord.

APPENDIX II

Itinerary

26 July. Left Aalesund in evening on *Polarbjorn* for Jan Mayen.
29 July. Called at Jan Mayen, then continued north late that evening.
30 July. Entered scattered ice in the evening.
31 July. Ice a little thicker. Raised Kap Herschell during early afternoon. Tried to go up Young Sund, but ice blocked the way. Continued into Gael Hamkes Bugt and anchored for the night in winter-ice at the bottom of Loch Fyne.
1 August. Left in the ship's boats for the head of Loch Fyne, where we landed. Started walking south immediately, carrying food for six days, goose-catching equipment, tents, etc. Camped on the east side of Badlanddal about three miles from the sea.
2 August. Crossed sandy waste to west side of Badlanddal; walked over all the area between the head of Loch Fyne and the head of Moskusokse Fjord. Camped on that side.
3 August. Walked south down the west side of Badlanddal to the northern end of Vestersletten. Pitched camp; then split into three parties of two and walked over nearly all the Vestersletten.
4 August. One adult Barnacle and three well-grown young caught in north-eastern Vestersketten. Split into three parties of two again and walked by different routes to Myggbukta Radio.
5 August. M/s *Polarbjorn* arrived early in the morning. Went to try to catch the few Pinkfoot goslings that we had seen during the walk on 4 August.
6 August. Expedition on board *Polarbjorn* again. Went up Dusens Fjord, and five of the expedition put ashore at eastern end of Noadal.
7–11 August. Party in Noadal carried out a very thorough survey of the wild life in this area, and climbed to Point 1657 to the south of Noadal.
7 August. *Polarbjorn* continued south on the eastern side of Ymers O and Traill O. Eventually halted by fog and ice conditions.
8 August. Remained still for most of day at edge of ice in fog. Then, being unable to find way into Mountnorris Fjord, set course for Antarctiskhavn.
9 August. A short stay in Antarctiskhavn, during which time the member remaining on board made a short trip up the valley that goes south from Antarctiskhavn. Set course back to Mountnorris Fjord, found a way through the ice in the better visibility and sailed right up to the western end of the fjord. *Jopeter* seen stranded on the shore.
10 August. Back to Antarctiskhavn, then on to Mestersvig. Then on again to drop stores at Kap Petersen. Went ashore for a few hours inland from Holmes Bay on southern Traill O. Continued up King Oscar's Fjord to spend the night at the eastern end of Vega Sund.
11 August. Back west along Vega Sund, continued north up King Oscar's Fjord, passed Ella O, through Antarctics Sund and the expedition was united again in Blomsterbugten.
12 August. Continued to Brogetdal and some members walked nine miles up it. On again in the evening and sailed along the face of the Walters Hausen Glacier. Spent the night anchored half-way up Moskusokse Fjord.
13 August. Back to Brogetdal to pick up members of the crew who had remained there to fish for 'salmon'.
14 August. Sailed down Kaiser Franz Joseph's Fjord into Foster Bugt, and were put ashore on Hold-with-Hope foreland fifteen miles east of Myggbukta.

15 August. Split into two parties of three: one going to the mouth of the Glommen just north of Kap Broer Ruys, the other going to the east of Uglehojene and back down the Dyraelv.

16 August. *Polarbjorn* returned from Myggbukta to pick us up; continued north to try to drop stores at Kap Maurer on Kuhn O.

17 August. Ice blocked our way, so we eventually dropped them at Vardenoes on the south-east point of Sabines O.

18 August. South to Young Sund to pick up salmon fishers at Zackenberg. Called at Kap Herschell and then turned south down east coast.

19 August. Into Mountnorris Fjord and sailed to western end of it to find that the *Jopeter* had been refloated. Split into three parties of two, and did a survey for geese about eight miles inland from the head of the fjord.

20 August. Set course back for Aalesund in the first snow-storm we had experienced during our time in Greenland.

21 August. Clear of the pack-ice by the late morning.

25 August. Arrived Aalesund.

APPENDIX III

Rations

A man/day ration consisted of the following:

	oz.		*oz.*
Dehydrated meat	2	Powdered milk	1½
Pemmican	2½	Biscuits	4
Porridge oats	4	Mlo	1½
Margarine	4	Dried vegetables	½
Sugar	3	Mint cake	2
Chocolate	4	Cheese	1

This gives a weight of 30 oz. per man per day: even during our more energetic periods it was generally agreed that this was a very generous ration, and there is no doubt that a considerable saving in weight of food carried could have been made without interfering with the physical fitness of the members of the expedition.

Six man/day rations (i.e. enough for the expedition for one day) were packed into a fibre-board box. This type of container, although very light, was not really very satisfactory, as it absorbed sea- and rain-water, becoming limp and fragile.

Many of the individual foods (including the very sharp dried vegetables) were packed in polythene bags which were found to be quite excellent in every respect.

Small quantities of luxuries were carried as well, and included tea, jam, marmalade, curry powder and various soups.