

# Observations of Birds in East Greenland, 1966

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(Med et dansk resumé: Fuglene i Østgrønland, 1966.)

## INTRODUCTION

We landed at Daneborg, Young Sund, on 26th July 1966 and we were fortunate to be taken later that day in a small boat from M. V. Nella Dan by Captain PEDERSEN when he went to the west side of Zackenberg Bugt. Store Sø Dal, Slettedalen, Lindemans Fjord to the east and west of Porten, and Lindemansdalen were visited by 1st August. Much of the next few days was spent drying and pressing plant specimens. We were collected again on 6th August and by the kindness of the Danish Authorities we were put down at the southern end of Loch Fyne on 8th August and allowed to use the hut. Then upper Tobias Dal, Stordal, Dybendal, and the N. E. and S. W. slopes of Ankerbjærg were visited. We embarked again near Ankerbjærgselv delta, Moskusokse Fjord, on 20th August, and had short stops at Brogetdal and Solitærbugt on Ella Ø before we reached Noret on 22nd August, after which there was just time to visit Antarctic Havn and Mesters Vig.

We arrived in autumn. Many flowers had ceased flowering and many waders had departed southwards. In addition to our observations, a collection of vascular plants and a few Bryophytes, which is at the British Museum (Natural History), and some botanical notes were made. Living and preserved specimens of *Epilobium arcticum* were brought back for G. C. G. ARGENT but unfortunately it proved impossible to make chromosome determinations.

Most bird notes from Kong Oscars Fjord are excluded from this account. Few birds were seen on the passage to Greenland. It happened that we were at Daneborg near Wollaston Forland on 6th August which was the bicentenary of the birth of WILLIAM HYDE WOLLASTON.

Since 1955, it has not been possible to account at known localities in East Greenland for many Barnacle Geese (*Branta leucopsis*) that come from Greenland and have been found on passage in Iceland and in winter in Scotland and Ireland in particular on the Isle of Islay. In 1963, the Trinity College, Dublin, expedition planned an aerial survey of the wildfowl in N.E. Greenland. In 1964 and 1965 Swiss expeditions to the north of Mesters Vig were planned and abandoned, which prevented us from collaborating with them over transport.

The main objects of the 1966 Cambridge expedition were to investigate the distribution and breeding success of the Barnacle Goose north of Mesters Vig extending the work of the 1955 and 1961 Cambridge and the 1963 British expeditions which were between about 71° N. and Mesters Vig. We have postulated that breeding success in Greenland is not consistently the same at localities all over the known breeding range and that ecological factors affect breeding success, distribution, and abundance. We are indebted to all the Danish Authorities, Sirius, and their members in

Greenland for hospitality, assistance and in enabling us to undertake the venture and similarly to the Greenland bird banding scheme of the Universitetets Zoolo-

giske Museum in Copenhagen and Dr. FINN SALOMONSEN and Dr. EDWARD HINDLE.

## OBSERVATIONS ON GEESE

### PALE-BREASTED BRENT GOOSE

(*Branta bernicla hrota*).

1 flightless adult in Barnacle flock upper Store Sødal. In the winter 1966-67 one of us saw a family amongst a Barnacle flock on the Isle of Islay, Scotland.

### BARNACLE GOOSE (*Branta leucopsis*).

Some observations are listed in Table 1. In addition some scattered adults were in the estuary at Zackenberg Bugt on 26th July. Broodless adults were first seen flying on 28th July and progressively more afterwards. 70-80 flying adults with a separate breeding flock of about the same size, which ran, were seen upstream of the gorge that leads to the delta of Storelv. There were 12 flying adults on the eastern slopes of Whittard Bjærg, 65 adults on the south eastern slope of Takkerne, and 73, 12, 3, ca. 100, 69 and 45 adults and 12

adults with some large downey goslings by lakes in upper Stordal. There were also a lot of feathers but no Barnacle by a pond on an hillside at the top of Stordal. 3 pairs were identified with 3, 2 and 1 goslings; the single gosling had feathers. Large flock feeding on the slopes of Parkinsons Bjærg on 14th August were probably birds seen previously. In upper Dybendal feathers of 1965 and 1966 with excreta were common by the lower lake at 500 m., but no Barnacle were seen though it is probable that some were still present near the lakes. The journey did not go as far as the two westward lakes in Dybendal. If there had been sufficient time to make the journey with a safety margin, Krumme Langsø and the two lakes in Dybendal would have been visited and it is probable, in our opinion, that Barnacle would have been found there and by adjacent small ponds.

There were many Barnacle feathers by ponds on raised beach hills on the north side of inner Moskusokse Fjord and some by the shore of the fjord and by ponds west of the inner end of Loch Fyne. Pinkfoot feathers were commoner by ponds on raised beaches near lower Storelv. Non-breeders usually fly by the first days of August. 1 yellow neck-banded adult male, marked in 1963 by the British expedition in Fleming Fjord, was seen in lower Broget Dal.

*Carex bigelowii* had been eaten by ponds below Zackenberg and *Carex bigelowii*, *Luzula conjusa* and some *Poa arctica* had been eaten by a lake in the narrower part of Store Sødal. In Lindemansdalen *Carex bigelowii* and some *Eriophorum Scheutzii*, *Poa arctica* and *Equisetum* eaten. Some *Hippuris vulgaris* had been pulled but we could not see that much had been eaten. *Carex ursina* and *Carex bicolor* had been eaten with *Puccinellia* where there were Barnacle near Loch Fyne.

Large numbers of Barnacle have tended to be found by rivers and sometimes by lakes and ponds through which water flows. Barnacle are often found far inland even in late summer as in Jameson Land and just south of Skærfjorden. Most have so far been found on raised beach terrain and strandflat especially in the zone between the outer coastal and inner fjord zones amongst mountains of calcareous and sedimentary strata and sometimes there are dolerite intrusions. These

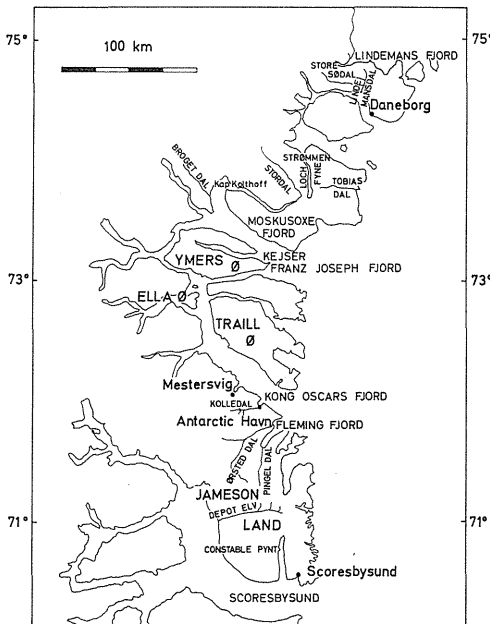


Fig. 1. Part of East Greenland visited by the expedition in 1966.

Fig. 1. Del af Østgrønland, hvor ekspeditionen arbejdede i 1966.

Table 1. Some observations of Barnacle Geese (*Branta leucopsis*).Tabel 1. Nogle iagttagelser af Bramgås (*Branta leucopsis*).

Number	Locality	Remarks
17 + ca. 25	W. of Cardieceras estuary	flightless adults 26th July
10, 7, 12, 19, 11	ponds, E. side Zackenberg	flightless adults 26th July
17	pond, E. side lower Store Sødal	flightless adults 26th July
some	large pond, E. side Store Sødal estuary	seen from afar
23, 15	ponds, S. E. corner Dombjærg, Lindemansdalen	flightless adults
2 pairs		
2,2 pulli	pond: mountain W. of S. E. part of Dombjærg, Lindemansdalen	downey pulli alt. ca. 300 m.
6, 12, 89, 6, 13	lakes: Store Sødal	adults. old & 1966 feathers
63	pond, N. of lakes: upper Store Sødal	adults. old & 1966 feathers
2 pairs		
1,2 pulli	another pond, N. of lakes: upper Store Sødal	downey pulli
0	another pond, N. of lakes: upper Store Sødal	many old feathers
0	ponds, Slettedalen & W. of Porten	excreta: no feathers
8	near Svestrups delta	adults
ca. 60	near Dolomitald (in air)	Aeroplane - 5th Aug. Adults
25-30	N. of Strømmen, E. side Loch Fyne	adults
22	over upper Tobias Dal	adults flying W.
28	Herjælv	adults flying low W.
37, 5	ponds, W. of S. end Loch Fyne	adults
7, 3	near hut, W. side of S. end Loch Fyne	adults
12	ponds, E. of lower Stordal	adults
8 + 6	Moskusokse Fjord, W. of Storelv delta	flightless adults, 17th Aug. ? lost goslings
10 + 8	Broget Dal	adults
?	Western lake, upper Store Sødal pass	Not visited: probably present

Table 2. Some observations of Pink-footed Geese (*Anser fabalis brachyrhynchus*).Tabel 2. Nogle iagttagelser af Kortnæbbet Gås (*Anser fabalis brachyrhynchus*).

Number	Locality	Remarks
29-31	Estuary, Cardiecerasdal	flightless adults 26th July
17	Store Sødal estuary	flightless adults 26th July
Not more than 60	Zackenberg Bugt	
20	Zackenberg Bugt	included 3 pulli, 2nd Aug.
45	Zackenberg Bugt	included at least 13 pulli in families - 1, 1, 1, 2, 2, 2, 4 pulli on 5th Aug.
1	pond, E. side of Zackenberg	adult in Barnacle flock
2	Daneborg	visiting lush vegetation, 6th Aug.
41	W. side inner Loch Fyne	families 0, 1, 1, 2, 2, 2, 5 pulli
10	pond W. side inner Loch Fyne	adults
11	Loch Fyne	adults 11th Aug. flying S.
ca. 400	ponds, upper Tobias Dal ca. 200 m.	adults
? few	S. shore Stordal estuary	calls of adults heard
8	N. shore Stordal estuary	adults
34	Ankerbjærg	families 1, 2, 3, 3, 3, 4, 4 pulli; most adults flew: 17th Aug.

mountains tend to be associated with more open country and different floral characteristics than for example country with metamorphic strata. Observations in 1966, suggest that there will be more suitable places where Barnacle could breed and moult that are inland above 200 m. in altitude. For some years we have predicted that inland places near Hochstetters Forland should hold an important part of the Barnacle population in Greenland.

#### PINK-FOOTED GOOSE

(*Anser fabalis brachyrhynchus*).

Some observations are listed in Table 2. Various numbers visited the west side of Zackenberg Bugt and egg shells on a raised beach may have come from nests in the vicinity. They had eaten down *Poa pratensis* and *Poa alpina* especially the latter which was a relatively uncommon plant at Zackenberg. Some *Poa glauca* near the huts, *Carex subspathacea*, *Puccinellia phryganodes*, and a very little *Phytolacca algida* had also been eaten.

Pinkfeet had visited ponds on high ground overlooking Loch Fyne for example on the west side of Knasten and Røgelén. Probably there are more similarly situated ponds on Hold with Hope Forland such as those in upper Tobias Dal that are used by moulting Pinkfeet. There were moulted feathers by ponds on raised beaches on the eastern side of lower Stordal and a breeding flock that included 30–40 adults was found by the river; probably some or all went upstream and were seen again later where there was a flock of 12 flying adults, 33 adults which did not take flight, and many goslings. Two family parties identified of 3 and 3 goslings. One adult was accompanied, when disturbed, by 9 goslings, which was more than one family. *Carex saxatilis* and some *Polygonum viviparum* had been eaten. 13th August, 23 flying adults near junction with Dybendal. 16th August, 6 adults by ponds near lower Storelv. At the top of Stordal 14 adults were seen flying north west in the direction of Krumme Langsø.

23–24th August, 180–200 adults south of Noret and they had gone by mid-day. 28–30th August about 30 seen near Noret. 4 adults in lower Delta Dal and 7 more adults flew in from Mesters Vig or Noret on 27th August. Early on 26th August flocks of 92 and 13 flew high over lower Kolledalen and turned up Flexurdal in the direction of Fleming Fjord; No gosling call notes were heard. Presumably this was an autumn movement. Later 9 feeding in upper Kolledalen gave the calls of adults and at least one gosling and flew down the valley.

33 Pinkfeet have been banded in N.E. Greenland: 18 adults (5 ♂ og 13 ♀) and 15 goslings, during the summers of 1955–56. The excess of fe-

males is believed to be due to the behaviour of the males, the late dates of capture most broodless adults have grown new remiges, and the presence of goslings. A large flock of broodless adults was nearly caught at the end of July 1955, but the birds could not be edged into the catching pen after leaving the water and finally winged away into the high wind. Two goslings were recovered in Scotland in 1955 and since then two adults have been recovered there. One gosling banded in Scotland was recovered in its third summer in 1961 as a broodless adult in Ørsted Dal. Large scale banding in Fleming Fjord of breeding flocks would probably confirm this pattern of distribution in 'normal' winters though presumably there would then be some recoveries near roosts in England and the border with Scotland.

Although many more Barnacle Geese were banded by the 1955 Cambridge expedition in Fleming Fjord, the main object was to band non-breeding Pinkfeet in connection with the hypothesis that many non-breeders in the highland interior of Iceland annually undertake a 'moult' migration to N.E. Greenland in late June before moulting their remiges (TAYLOR 1953). The observations of the RIDLEY Brothers (TAYLOR 1953) are especially important as support for the hypothesis. In 1951 and 1953 the Wildfowl Trust had found fewer broodless adults (a mixture of pre-, non- and failed breeders) on the main Icelandic breeding grounds than is normal in a goose population. In 1955 one of us repeated this observation in the same places. In March 1955 R. A. H. COOMBS pointed out to us that special moulting places are common for some Siberian geese (e.g. PLESKE's *Birds of the Eurasian Tundra*.) CONRADSEN (1957) noted some Pinkfeet appearing near Daneborg in June 1955 when it was known most geese arrive 15–27th May. In 1964 the Danish expedition obtained much new data near Daneborg and reviewed the evidence for the hypothesis and again drew attention to the observations of ALWIN PEDERSEN of pre-breeders on Hochstetters Forland (CHRISTENSEN 1967) which have not been repeated yet.

In late June 1955 one of us saw three small flocks flying high and northwards from the northern side of breeding places in central Iceland and also saw one large flock flying northwards above the football pitch in Akureyri, northern Iceland. In early July 1963, one of us with the British expedition saw small parties of broodless Pinkfeet flying up into upper Ørsted Dal, Greenland. Presumably they were going to moult there or by Schuchert Flod and could have come from Iceland or adjacent fjords in Greenland. Flocks of broodless adults have been found in both valleys in 1955, 1961 and 1963 and also at other places between 71–72° N. in these years and 1964. A

few flocks seen by G. C. G. ARGENT in 1962 on the south western parts of Traill Ø were of broodless adults. The increase of Pinkfeet noted in Iceland in early September and the last days of August has been attributed to the movement of birds from their Icelandic breeding grounds (SCOTT & FISHER 1953) but it now seems certain that a substantial part of this increase is due to the arrival of flocks from Greenland. These flocks would often be similar to flocks of broodless adults seen north and south west of Blafjell in Iceland by one of us in September 1963. The feeding grounds in the interior of Iceland are not covered by snow until later.

It has been suggested that we attributed excessive numbers of broodless adults in Jameson Land and Fleming Fjord in 1955, 1961, 1963-64 only to poor breeding success in Greenland (CHRISTENSEN 1967). This is a misunderstanding. Poor breeding success cannot be dismissed as a factor, for example, in 1961 (MARRIS & OGILVIE 1962). There

is a breeding population so some broodless adults are Greenland hatched prebreeders and failed breeding birds; while according to the hypothesis other non-breeders in Greenland are Icelandic hatched pre-breeders and possibly some failed breeders from Iceland. Some broodless adults could be mature birds paired to pre-breeders and other single birds that are true non-breeders of Greenland and possibly Icelandic origin. The Icelandic observations reported by TAYLOR (1953) were for a season of 'poor' weather which could have increased the number of broodless adults in Iceland and potential moult migrants. In the Barnacle Goose, banding in Greenland has shown that some early moulting broodless adults are quite old and can be assumed to have bred in previous summers, but it has not been investigated in the Pinkfoot. There has been a large increase in the number of Pinkfeet wintering in Scotland and England since 1950, which may explain why observers in Greenland before the

Table 3. Breeding flocks and nests of Pink-footed Geese found by 1955, 1961 and 1964 Cambridge and 1963 British expeditions.

*Tabel 3. Yngleflokke og reder af Kortnæbbet Gås fundet i 1955, 1961, 1963 og 1964 af britiske ekspeditioner.*

Locality	Year	Observation	Observer	Remarks
Upper Kolledalen	1955	small flock	F. T. Bolin	near ponds
	1963	2 nests	R. Marris	gorge edge below Oksehorn
Antarctic Havn	1963	ca. 50	R. Marris	goslings and some adults flightless. Families of 4, 2, 2, 1 goslings 18th Aug. & other goslings
Lower Fegins Elv	1955	2 nests	R. Marris	gorge edge. No thorough search
Hills west of		1 nest		
lower Depot Elv	1955	small flock	R. Marris	by ponds
Hills south east of inner part of lower				
Depot Elv	1955	80-100	R. Marris	by ponds
2 km. further inland	1963	7 nests	R. Marris	gorge edge branch of Draba sibirica elv
Middle Enhjørningens Dal	1964	2 nests	R. Marris	low lying ledge near delta fan
Skansen, Carlsberg Fjord	1964	2 nests	R. Marris	by ponds on hill slopes W. of Paselv
lower Solfaldsdal	1961	small feathers	R. Marris	in gorge
	1963	4 old unused nests 12 nests	R. Marris & G. C. G. Argent	gorge edge
Upper Ørsted Dal	1955	1 flightless gosling	R. Marris	in flock of 4 at Primula Sø 20th. Aug. (see map: Hall et al.)
East side upper Schuchert Flod	1963	12 flying adults 23 adults & 31 goslings did not fly	D. Marris	by pond 8th Aug.
Lower Pingels dal	1963	2 nests	R. Marris	on top of gorge edge, side of valley

1939-45 war did not report the arrival of birds in late June when the number of broodless adults that could have undertaken the journey from Iceland would have been smaller. There was also an increase in the population in the period 1890-1939.

Observations made in S.E. Greenland have been briefly reported (CHAPMAN 1932) relating to the migration route from Iceland to West Greenland of Pale-bellied Brent Geese (*Branta b. hrota*) and Whitefronted Geese (*Anser albifrons flavirostris*). If the Pinkfeet (SCOTT & FISHER 1953) which were reported as almost certainly Pinkfeet by CHAPMAN were flying towards the Inland Ice they would have been bound, we believe, for the inland highlands of W. Greenland and not for Scoresby Sund; otherwise these Pinkfeet would have stayed and moulted in S. E. Greenland, where the climate and vegetation in some places are more like those of the Icelandic breeding places than N. E. Greenland.

Breeding localities found by four expeditions are in Table 3. Probably the broods from Sol-faldsdal went into the delta region of Ørsted Dal either via the pass or around Kap Seaforth and we believe they were in a flock which contained larger goslings than those seen elsewhere in Ørsted Dal, for example, by ponds upstream of the junction of Ørsted Dal and Pingo Dal, ponds on the raised beach terrain below Bjergkrone (Pink-foot pond-HALL & WADDINGHAM 1966) and ponds on the north side of the upper delta area. Nests of a species of goose (not necessarily Pinkfoot) were in 1963 on the east side of Fleming Fjord and on the west side in Rhaetelv in rather similar accessible situations to that in Pingel Dal. One of us has been told that breeding did occur at Constable Point, Hurry Fjord, in 1933. The nests were visited by Greenlanders. Some non-breeders in 1933 were failed breeders.

We believe Barnacle outnumber Pinkfeet north of 74° N., but this is not proved yet. The indications are that Pinkfeet are commoner than Barnacle in E. Greenland south of Scoresby Sund. From Scoresby Sund to 74° N. adult Pinkfeet appear to have outnumbered or been about the same number as adult Barnacle at least in the years 1955-62. Most Pinkfeet are broodless adults even in good breeding years for Barnacle. The Barnacle population is an indication of the size of the Pinkfoot population in Greenland. Observations of breeding in Greenland in 1963 and in Scotland by us and in Eire by D. B. CABOT lead us to estimate that the population of Barnacle in August 1963 had risen from 14000 to 16-18000.

As a result of observations by R. MARRIS on the 1955 Cambridge expedition in Fleming Fjord and S. W. Jameson Land it was postulated in correspondence with Dr. FINN SALOMONSEN in 1955 that Pinkfeet prefer marshey tundra and ponded localities favoured by Dunlin (*Calidris alpina*) with a lot of *Equisetum arvense*, and that most Pinkfeet were broodless adults. In such places Barnacle are rare. This was especially noted in 1955 when the populations of both species were smaller than now. Pinkfeet are relatively rare on the banks of rivers in Fleming Fjord and are very rare by the rivers in S. W. Jameson Land where Barnacle were discovered in 1955 and flocks of Pinkfeet have been found by ponds on hills adjacent to the rivers. It seems to be an ecological preference. Good growths of *Calamagrostis neglecta*, *Carex saxatilis* and often *Polygonum viviparum* tend to occur in these habitats and are eaten by the Pinkfeet. In some places *Carex rariflora* and *Eriophorum scheutzii* are abundant and eaten; the latter is eaten earlier when still growing. *Carex bigelowii* has been found grazed by ponds near Depot Elv.

## OTHER SPECIES

### GREAT NORTHERN DIVER (*Gavia immer*).

3 adults arrived in twilight early on 10th August and displayed on Loch Fyne. They were probably the same as 3 adults on a large pond near lower Stordal. 1 adult that may not have been alone at the entrance to Mesters Vig on 28th August.

### RED-THROATED DIVER (*Gavia stellata*).

2 adults upper Store Sø Dal, inner Loch Fyne, and Store elv estuary. 3 adults Zackenberg Bugt. 1 adult on Storelv below confluence with Dyben-dal. 2 adults and 1 small downey young off shore by Ankerbjærg on 17th August.

### FULMAR (*Fulmarus glacialis*).

1 dark phase adult in inner Nordfjord. In future they should be looked for on the cliffs at Kap Kolthoff, where we saw some unidentified birds and possibly some large young sitting on ledges.

### LONG-TAILED DUCK (*Clangula hyemalis*).

About 40 flightless adults by western shore of inner Loch Fyne and on 15th August 1 adult with 3 downey ducklings that we estimated to be not more than a week old. 8 flightless adults east of Ankerbjærgselv delta and similarly 42 and 9 west of the delta.

KING EIDER (*Somateria spectabilis*).

1 adult female and 4 small downey ducklings on a pond up Store Sø Dal.

EIDER (*Somateria mollissima*).

In last two years many deserted Sandøen and come to nest between the original fangsthytte and the Sirius houses at Daneborg about the tethered huskies. Nests with hatched or destroyed eggs were found and other females were sitting on nests. One nest with 4 eggs was seen. An adult female with 2 ducklings and another with 3 ducklings were near the estuary of Cardiecerasdal on 26th July. From time to time Zackenberg Bugt was visited by flying adult females. On 11th August 1 adult flying south from Loch Fyne up Badlanddal.

We did not notice many Arctic Terns about Sandøen when we passed offshore in bad weather. There is a possibility that the Eider desertion is associated with fewer or absent nesting Arctic Terns.

GYR FALCON (*Falco rusticolis candicans*).

1 adult near Ankerbjærg on 17-19th August. 1 adult at Blomsterbugt and Noret and 2 at Kap Bull.

PTARMIGAN (*Lagopus mutus*).

Excreta seen in most places and occasionally feathers. 1 heard in Lindemansdalen. A covey of 37 on slopes by Mesters Vig on 28th August – the only birds seen.

RINGED PLOVER (*Charadrius hiaticula*).

Individual birds had a scattered distribution in Lindemansdalen including the pass area, lower Store Sø Dal, and on the raised beaches by Zackenberg Bugt. They were met all the way up Dybendal including the barren area below the lakes, which is more barren than their usual habitat. Occasional birds in Stordal and two groups of 4 and 5 on 12th August and 10 flying down the valley on 14th August.

TURNSTONE (*Arenaria interpres*).

We think the following were migrants: 7 adults on 3rd August at Zackenberg Bugt, 5 adults on 6th August at Daneborg. 6 flying south over the south end of Loch Fyne 8th August. 4 at the top of Store Sø Dal.

DUNLIN (*Calidris alpina*).

1 adult west side of Zackenberg Bugt and Stordal. None were found by ponds in lower Stordal probably because of our late arrival. 1 heard giving breeding calls in the south end of Lindemansdalen.

SANDERLING (*Crocethia alba*).

2 adults at top of Store Sø Dal. 1 adult in upper Stordal. 17 on migration lower Stordal on 10th August. 4 waders, probably of this species, migrating or undertaking pre-migratory movement over Young Sund on 24th July.

ARCTIC SKUA (*Stercorarius parasiticus*).

1 adult in aerial fraca with 2 Long Tailed Skuas at mouth of Tyroler Fjord. 2 adults at south end of Loch Fyne which behaved as if they had young.

LONG-TAILED SKUA (*Stercorarius longicaudus*).

Only adults seen: 2 near Cardiecerasdal, maximums of 3 and 4 by shore of Zackenberg Bugt and in lower Store Sø Dal, 2 at south end of Loch Fyne where they left between 11th and 15th August, and at least 7 in the Strømmen of Loch Fyne.

GLAUCOUS GULL (*Larus hyperboreus*).

None at Daneborg. Maximum adults seen at once: 13 at exit of lower lake in Store Sø Dal, 4 Store Sø Dal estuary, 3 at upper end of largest lake in Store Sø Dal, 2 in Storelv estuary, 2 at lake in Stordal, 2 Hoelsbu, 13 off Kap Kolthoff, 9 in estuary of Brogetdal, 3 Blomsterbugt, 3 Antarctic Sund, 1 Ruth Ø. A pair in upper Stordal had a nest on a large holder in a lake. On 12th August 2 young were downey and small; not far away were the remains of Ptarmigan. There were at least 3 nests with downey young that could be seen being fed at Kap Kolthoff. This bird presumably takes eggs and probably some goslings of Barnacle in Stordal and Store Sø Dal.

SABINE'S GULL (*Xema sabinii*).

2 in Strømmen, Loch Fyne.

ARCTIC TERN (*Sterna paradisaea*).

Adults: Many seen in distance off Basalt Ø, 4 Lindemans Fjord, about 24 in Strømmen, Loch Fyne, 3 upper Tobias Dal ponds, 6 south end of Loch Fyne and later 11 collected together there, 5 near delta of Ankerbjærgselv, 4 Hoelsbu, 3-4 at various other places in Moskusokse Fjord, 6 estuary of Brogetdal, 3 by shore south of Blomsterbugt, 3 off Ella Ø, common off glacier in Nord Fjord and scattered birds seen over fjords between Broget Dal and Ella Ø. 2 and 1 small downey young and 1 added egg on 10th August on sand spits in Loch Fyne.

LITTLE AUK (*Plutus alle*).

1 adult near Kap Kolthoff.

RAVEN (*Corvus corax*).

Adults: 3 Zackenberg, 1 upper Stordal and An-

kerbjærg. We presume that it takes the eggs of Barnacle.

#### WHEATEAR (*Oenanthe o. leucorrhoa*).

No grey plumaged adults (male) seen. 1 adult and 2 young fledged on high raised beach Lindemans Fjord, 1 adult on a hut below Zackenberg, 3 on southern slope of Takkerne, 1 Dybendal, 1 lower Stordal, 3 below Ankerbjærg, 1 adult and 1 young on slopes above Ankerbjærgselv, and 2 near huts at Ella Ø. The sites were either near huts or places that were of sunny exposure with some protection and relatively good vegetation. At 71–72° N. between the outer coastal and inner fjord zones it tends to occupy similar places that are not wet and are often by dolerite exposures; presumably this is associated with nesting and food preferences.

#### ARCTIC REDPOLL

(*Carduelis flammea hornemanni*).

2 arrived south end of Loch Fyne on 15th August. 2 on raised beaches near Storelv estuary, 3 near flocking Snow Buntings near lower Prospekt Dal, 10–11 on slopes above lower Ankerbjærgselv, and several near Ankerbjærgselv delta between 17–19th August. Flock of 15 at Ella Ø on 22nd August and moved away again. These and the influx near Noret on 29th August were birds undertaking pre-migratory movements.

There were 2 in upper Stordal and by the lake in upper Dybendal and 3 below the lake. There appeared to be almost a colony in Dybendal of not less than 40 birds on 13–14th August (probably about 50 birds). Most were in two groups of 16 and 20 which included young.

Any travellers to the innermost fjords of Scoresby Sund or in the inner fjord zone about and to the north and west of Ella Ø during June or the first ten days of July should be encouraged

to band Redpolls (*Carduelis flammea*) as results could help in taxonomical studies and in the possibility of balanced polymorphism or plumage variations such as found amongst a number of arctic species of birds. It would be useful to take lateral and dorsal standard distance photographs with a scale and possibly a few measurements on adults. In the autumn flocks occur on the hills not far from Mesters Vig Flypladsen and it might be possible to make captures in September or the last days of August. (Snow Buntings banded at Daneborg by F. R. CONRADSEN have been recovered in winter east of the Greenland Sea – reported for the Bird Banding Scheme for Greenland by Dr. FINN SALOMONSEN in *D.O.F.T.*). If banding north of 72° N. in N. E. Greenland gave similar results as for the Snow Bunting then this would affect the statements (SALOMONSEN 1950) about Redpolls in the inner fjords of N. E. Greenland and in Finmark (see *C. f. rostrata*, *C. f. islandica*, *C. f. hornemanni*) and of winter and summer residents of Iceland.

#### SNOW BUNTING (*Plectrophenax nivalis*).

Young at Zackenberg and Daneborg on 26th July were fledged. A few scattered birds seen between Zackenberg Bugt and Lindemans Fjord. Twittering 'winter' call first noted 12th August amongst two flocks of 5 and 8 in upper Stordal. About 40 arrived in upper Dybendal in the early hours of 14th August. Several were seen on walk about lower Stordal on 16th August where none were seen earlier. Small flock near east end of Moskusokse Fjord on 17th August and others on way to delta of Ankerbjærgselv, 14–20 near south west end of Ankerbjærg and a few in lower Ankerbjærgselv on 18–19th August; these birds were beginning to flock for the late autumn. It was rare near the south end of Loch Fyne and in Stordal. None seen in lower Brogetdal.

### BIRDS AT SEA

1 dark phase Fulmar *Fulmarus glacialis* was noted before we reached the ice on the 20th July; all others were pale phase. On 20th, we saw 1 Brunnich Guillemot *Uria l. lomvia* and a small party of Little Auks *Plotus alle*. While on deck

we noted 4 dark phase and 1 pale phase Fulmars on 21st July and also saw 2 adult and 2 immature plumaged Ivory Gulls *Pagophila eburnea*. Early on 22nd when near Wollaston Forland another dark phase Fulmar was seen.

### SUMMARY

Notes are given of observations in East Greenland mainly at places between Tyroler Fjord and Lindemans Fjord, and at places accessible on foot from the south end of Loch Fyne during July – August

1966 together with a few observations in the ice off Greenland in 1966 and of geese between 71–72° 20' N. in summers before 1965. Our 1966 Cambridge expedition had a special interest in the Barnacle Goose



*Branta leucopsis* which arose out of field work on that bird by the 1955 Cambridge expedition. We believe that the Barnacle Goose is commoner than the Pink-footed Goose *Anser brachyrhynchus* to the North of 74° N. and we have obtained further evidence in support of the hypothesis. Further notes are given about the Pink-footed

Goose that are relevant to the hypothesis of a 'moult migration' into E. Greenland. It is suggested that migrating Pinkfeet in S. E. Greenland do not fly northwards to N. E. Greenland to breed and moult. The number of Pinkfeet in E. Greenland was underestimated before 1955.

## DANSK RESUMÉ

### *Fuglene i Østgrønland, 1966.*

Cambridge ekspeditionen 1966 landede i Dancborg, Young Sund, den 26. juli. Først besøgte man Store Sødal, Slettedalen, Lindemans Fjord øst og vest for Porten, Lindemansdalen og Zackenberg Bugt. Den 8. august landede vi i den sydlige del af Loch Fyne og besøgte den øvre del af Tobias Dal, Stordal, Dybendal og nordøst og sydvest siderne af Ankarbjærg, hvorefter vi kom til Moskusokse Fjord den 20. august. Der blev gjort korte ophold i Broget Dal, Ella Ø, Noret, Mestersvig og Kolledalen, før vi forlod Grønland. En samling af planter befinder sig nu på British Museum of Natural History. De fleste iagttagelser over fugle fra Kong Oscars Fjord er ikke medtaget i denne rapport.

I Irland og i særlig grad på øen Islay overvintrer mange grønlandske Bramgæs (*Branta leucopsis*), som også passerer Island på trækket. Imidlertid er de Grønlandske ynglepladser ikke kendt. Et af de vigtigste formål med 1966 Cambridge ekspeditionen var at undersøge de grønlandske Bramgæs udbredelse, yngleforhold og ynglesucces nord for Mestersvig, hvilket var en fortsættelse af arbejdet i 1955, 1961 og 1963. Meget tyder på, at ynglesuccesen i Grønland ikke er den samme over hele artens udbredelsesområde, idet økologiske faktorer påvirker ynglesucces, hyppighed og udbredelse.

Denne rapport indeholder hovedsaglig observationer og notater om gæs og nogle andre arter, og der beskrives bl. a. adskillige iagttagelser fra pakisen. De 3 tabeller indeholder yderligere oplysninger om gæs. Der gives oplysninger om gæsenes fødeplanter. Der synes at være en økologisk forskel mellem Kortnæbbede Gæs' (*Anser fabalis brachyrhynchus*) og Bramgæs' biotopvalg. Bramgæs forekommer oftest ved floder, på kystsletter og ved større og mindre søer, hvor der er en gennemstrømning af vand. Kortnæbbede Gæs

foretrækker sumpede arealer med stillestående vand og småsøer, som desuden rummer ynglefugle som f. eks. Almindelig Ryle (*Calidris alpina*), begge gåsarter træffes i over 200 meters højde og langt inde i landet. Bramgæs og Havlits' (*Clangula hyemalis*) ynglesucces var ikke god det pågældende år i de områder, som blev besøgt.

Voksne Kortnæbbede Gæs uden unger i Grønland kan være et af følgende 1) endnu ikke yngledygtige fugle 2) ikke ynglende fugle, 3) fugle, hvis yngel er mislykket, samt muligvis voksne kønsmodne gæs parret med endnu ikke kønsmodne fugle. Desuden kan man finde Islandske fugle af disse kategorier i Nordøstgrønland, jvf. teorien om fældningstræk fra Island til Grønland. Nogle observationer fra Island gives her.

Bestanden af Kortnæbbede Gæs i Nordøstgrønland blev undervurderet før 1955. 33 gæs er blevet ringmærket i Nordøstgrønland i årene 1955-66 og har resulteret i 4 genfangster i Skotland af fugle ringmærket i Ørsted Dal og Kolledalen. De fugle som ses i Sydøstgrønland tilbringer formentlig sommeren her eller trækker til de indre dele af Vestgrønland, og det er usandsynlig, at fuglene nær Sermilik Fjorden f. eks. trækker til Nordøstgrønland. Nord for 74° N. br. overstiger antallet af Bramgæs antallet af Kortnæbbede Gæs, men vi kan antage at Bramgæsbestanden, som i 1963 blev anslået til ca. 16.000 (inclusiv mange gæslinger) nogenlunde svarer til den samlede bestand af Kortnæbbede Gæs.

Ederfuglen (*Somateria mollissima*) har forladt Sandøen i de sidste to år og er begyndt at yngle omkring Sirius stationen. Gråmåger (*Larus hyperboreus*), blev iagttaget i Store Sødal og i Stordalen. I Dybendal blev ca. 50 Hvidsiskan (*Carduelis hornemanni*) iagttaget den 13.-14. august.

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## Territorial adfærd og dominans ved foderbræt

Af

BERTEL BRUUN

(With a Summary in English: Territorial Behaviour and Dominance at a Feeding Station.)

Siden HOWARD (1920) beskrev den territoriale adfærd har talløse undersøgelser over dette emne set dagens lys. Langt de fleste undersøgelser har imidlertid drejet sig om den territoriale adfærd i yngletiden, og meget lidt er publiceret om denne udenfor yngletiden.

SCHJELDERUP-EBBES epokegørende undersøgelser over hakkeordenen (1935) er ligeledes blevet efterfulgt af et væld af undersøgelser, men mest over fugle i fangenskab.

Hakkeordenens forhold til den territoriale adfærd er kompleks og lidet undersøgt i det fri. Begge adfærdsmønstre er af stor betydning for fuglenes overlevelseschancer,

som det er bedst udtrykt af ARMSTRONG (1947): »Territory and dominance both serve positive functions in relation to pugnacity; they restrict the ferocity of fighting, the former by reducing the number of combat contacts, the latter by preventing intermittent indiscriminate and indecisive strife and by establishing conditions permitting a measure of flock organisation«. Eksempler på overgang fra den rene territoriale adfærd til hakkeordenen er få. I vinteren 1966–67 havde jeg lejlighed til i min have i Rungsted at iagttage en sådan overgang hos Solsorten (*Turdus merula*). I oktober begyndte jeg at fodre fuglene i