Some Morphological Observations on the Guillemot *(Uria aalge aalge* PONT.*)* on Ellidaey, Westmann Islands

By

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(Med et dansk resumé: Nogle morfologiske iagttagelser af Lomvie (Uria aalge aalge PONT.) *på Ellidaey, Vestmannaeyjar.)*

In July 1969 I had the opportunity to make some observations on 150 Guillemots *(Uria aalge aalge* PONT.) captured with fowlers net on Ellidaey, Westmann Islands. They were caught between the 6th and 13th of July and examined immediately afterwards. Previously only two Guillemots from the Westmann Islands have been examined (SALOMONSEN 1944).

It is well-known that the percentage of bridled Guillemots – the *"ringvia"* ratio – varies very much, and that one of the highest percentages is found at the Westmann Islands. On Ellidaey I found 84 bridled and 64 unbridled birds. This corresponds well to the counts made in 1938-39, 1949-50 and 1958-60 (SOUTHERN and REEVE 1941, SOUTHERN 1951 and 1962, cf. table 1).

From the data in table 1 it appears that the *ringvia* ratio has decreased between the first and the third survey and increased very much during the sixties; nevertheless it has been stated that the survival rate of adults is very high, and that they are faithful to their subcolony (SOUTHERN 1966, SOUTHERN et al. 1965). The seemingly changes may be due to some patchy distribution of bridled birds; a mass movement seems less probable.

SOUTHERN and REEVE (op. cit.) and SALOMONSEN (op. cit.) suggest that the bridling is caused by a single gene. SOUTHERN and REEVE, however, report four truly intermediates in the thousands counted in the inquiry 1938-39. H. N. SOUTHERN (in litt.) informs, that these Guillemots had a bridle on one side of the head and none on the other side; they are suspected to be due to imperfect reproduction of chromosomes at the first cleavage.

On Ellidaey I found two Guillemots, intermediate in another way. On both sides of the head the bridling was poor developed: the white ring round the eye was very narrow, and the white line extended only halfway down the cheek.

Because of the apparent high frequency of intermediacy found on Ellidaey, the intermediate birds cannot be explained by accidents in the meiosis. Variable expressivity is excluded by the stereotyped appearance. Multiple alleles or genetic heterogeneity seems to be the most probable explanation.

The wing length was measured to the nearest whole mm. between the carpal joint and the tip of the longest primary on the flattened wing. The length of the bill was measured to the nearest fifth of a mm.

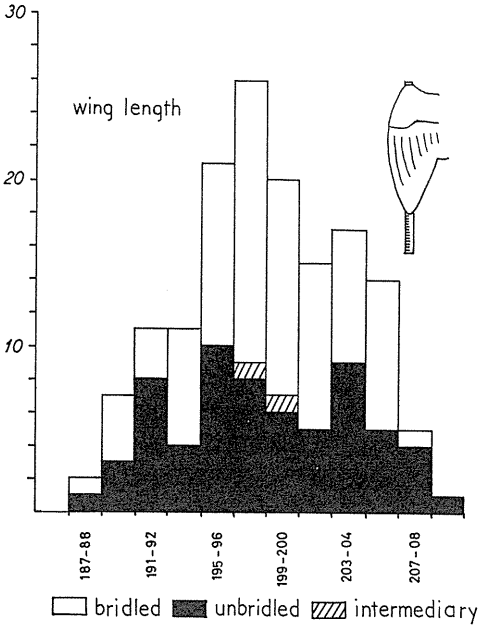


Fig. 1. The distribution of wing length.

Fig. 1. Fordellingen af vingelængde.

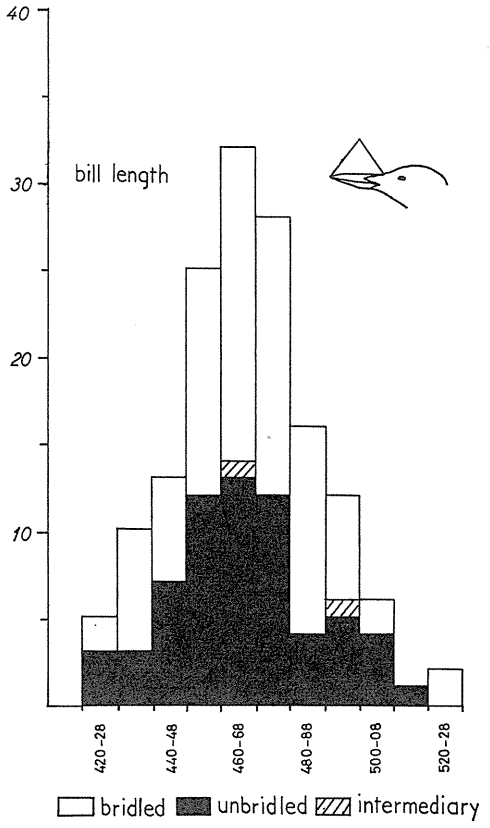


Fig. 2. The distribution of bill length.

Fig. 2. Fordelingen af næblængde.

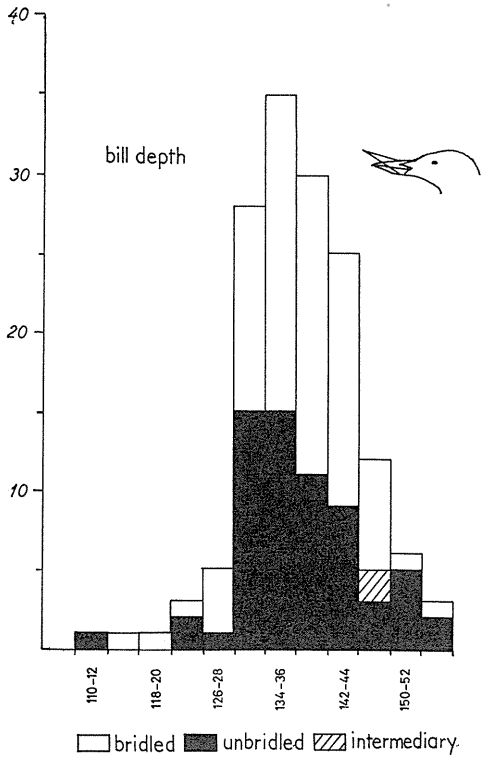


Fig. 3. The distribution of bill depth.

Fig. 3. Fordelingen af næbhøjde.

from the bases of the anteriormost feathers on the top of the bill to the tip of the maxilla. The bill depth was measured to the nearest fifth of a mm. as the maximum vertical depth of the closed bill; the results should thus be comparable with the data supplied by SALOMONSEN (op. cit.), STORER (1952) and PETHON (1967).

The wing length (see table 2 and fig. 1) is small compared to that of other populations of the nominate subspecies, cf. fig. 4. This may partly be due to wear because all my birds were captured about two months before their wing moult; the museum specimens examined by other authors are from all months of the year. The size of the wing may be dependent on the distance of the migration; but little is known about the winter quarters of the Islandic Guillemots (F. GUDMUNDSSON in litt.).

The bill (see table 2 and fig. 2) is almost as long as in the Norwegian and Faeroese populations; and it is longer than on the west- and northcoast of Iceland, cf. fig. 4. The bill therefore seems to conform to ALLEN's rule.

The mean of the bill depth (see table 2 and fig. 3) on Ellidaey corresponds to the data from E.N. America and Iceland. The few birds from the Faeroes had a shallower bill, while the Norwegian Guillemots had a much heavier bill, cf. fig. 4. However, the bill undergoes considerable age, sexual and seasonal variation (SALOMONSEN op. cit.). The bills of the museum specimens may have shrinked.

The spots on the under wing coverts were the main reason for separating the subspecies spiloptera (SALOMONSEN 1932). Concerning this character the Guillemots

Table 1. *Ringvia* ratio on the Westmann Islands. [1]) Figures from SOUHTERN 1962.

Tabel 1. Ringvia *procenten på Vestmannaeyjar.* [1]) *Tal fra* SOUTHERN *1962.*

	Total	Bridled Guillemots *Ringlomvier*	*Ringvia* ratio Ringvia *procent*	Change *Ændring*
1938-39[1])	1.028	541	52,63%	–
1948-50[1])	2.016	1.015	50,35%	÷2,28%
1959-60[1])	238	106	44,54%	÷5,81%
1969	148	84	56,76%	+12,22%

Table 2. Measurements of 150 Guillemots on Ellidaey.

Tabel 2. Mål af 150 Lomvier på Ellidaey.

	Range *Variationsbredde*	Mean ± standard error of the mean *Gennemsnit ± middelfejl på gennemsnit*	Standard deviation *Middelfejl*	Coefficient of variation *Variations-koefficient*
Wing length *Vingelængde*	187–209	198.5 ± 0.40	4.93	2.48
Bill length *Næblængde*	42.0–52.6	46.6 ± 0.15	2.01	4.30
Bill depth *Næbhøjde*	11.2–15.6	13.8 ± 0.06	0.73	5.32

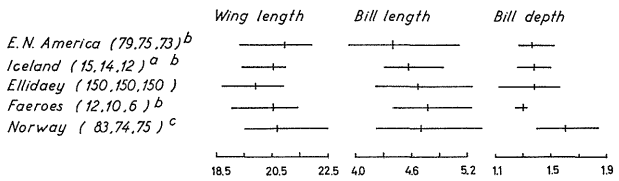
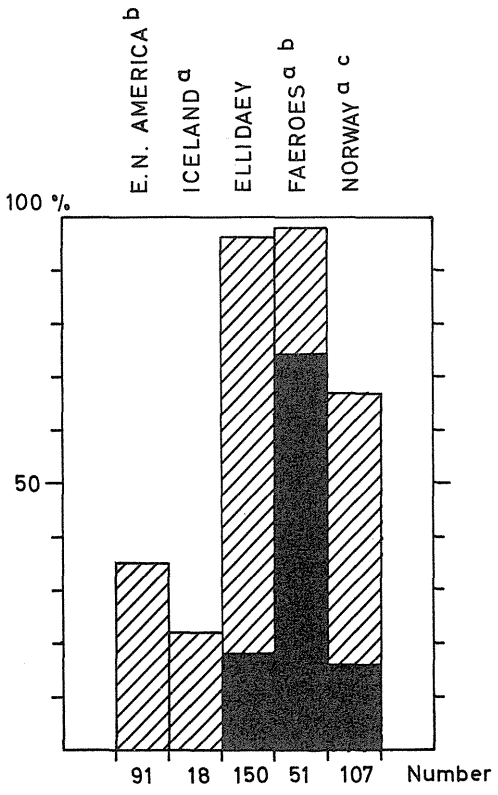


Fig. 4. Geographical variation of means and extremes in wing length, bill length and bill depth for *Uria aalge aalge*. Numbers of specimens measured are mentioned in brackets. Data from a) SALOMONSEN (1944), b) STORER (1952), c) PETHON (1967) and results of the present paper.

Fig. 4. Geografisk variation af gennemsnit og yderpunkter af vingelængde, næblængde og næbhøjde hos Uria aalge aalge. *Antal målte eksemplarer er angivet i parentes. Data fra a)* SALOMONSEN *(1944), b)* STORER *(1952), c)* PETHON *(1967) og resultater fra nærværende arbejde.*



	White *Hvid*	A few spots *Få pletter*	Heavily spotted *Mange pletter*
Number *Antal*	5	118	27

Table 3. Pigmentation of under wing coverts.

Tabel 3. Pigmentering af undervingedækfjer.

Fig. 5. Geographical variation of pigmentation of under wing coverts for *Uria aalge aalge*. Data from a) SALOMONSEN (1932), b) STORER (1952), c) PETHON (1967) and results of the present paper. Black: heavily spotted. Hatched: a few spots. White: no spots.

Fig. 5. Geografisk variation af pigmentering af undervingedækfjerene hos Uria aalge aalge. *Data fra a)* SALOMONSEN *(1932), b)* STORER *(1952), c)* PETHON *(1967) og resultater fra nærværende arbejde. Sort: mange pletter. Skraveret: få pletter. Hvid: ingen pletter.*

from Ellidaey resembles the Faeroese birds, and it might be difficult to differentiate the two populations (see table 3 and fig. 5). The Norwegian Guillemots are less dark under their wings, cf. fig. 5. However, the character is difficult to describe.

STORER (op. cit.) suggests that the Guillemots of the northern Scotland are intermediate between the subspecies *albionis* (of the southern British Isles and Heligoland) and *spiloptera* (of the Faeroes). The Guillemots of the Westmann Islands resemble the British birds in the short wing and the Faeroese birds in the long bill and the dark under wing coverts; they have shorter wings and longer bills than the Guillemots of Iceland. So the Guillemots of Ellidaey, Westmann Islands, fit in well with the Westmann Islands, fit in well with the clinal tendencies already described by STORER (op. cit.) and commented upon by PETHON (op. cit.).

The small differencies in measures of bridled an unbridled Guillemots (figs. 1-3) were by far not significant (X^2-test).

The colour of the scutes on front and sides of the tarsus was noted. Two of the fresh captured birds had yellow, nine black, and 139 Guillemots had yellow-brown to dark brown scutellation.

Two birds showed a loosening of the sheath of the bill at the front; both had a new smooth sheath underneath. This may be a reason to suggest that the Guillemot is able to moult the sheath of the bill, a phenomenon which is well-known in the Puffin *(Fratercula arctica)*. Since it has never been described in the Guillemot before, it needs further attention in the future.

One bird showed growth of feathers on neck and cheek, possibly the beginning of the first stage of moult, stage WB at SALOMONSEN (1944). Twenty birds in SALOMONSEN's material were from July, and only two specimens from late July were in moult. Thus considerable variation is found. None of my birds showed the feature described by SALOMONSEN (op. cit.) of 1st and 2nd year plumages.

A grant for this investigation was given by the Foundation of Danish-Islandic Cooperation, to which I am most grateful. The work on Ellidaey was carried out with the worthful assistance of PETER THOMSEN. I am indebted to POUL HALD-MORTENSEN for helpful advice and discussions.

DANSK RESUMÉ

Nogle morfologiske iagttagelser af Lomvie (Uria aalge aalge PONT.) *på Ellidaey, Vestmannaeyjar.*

På Ellidaey, Vestmanneyjar, havde jeg mellem d. 6. og 13. juli 1969 lejlighed til at gøre nogle notater om 150 Lomvier *(Uria aalge aalge* PONT.), som var blevet fanget ved flejning. Der var 84 af varianten *ringvia*, og 64 var uden ring. En *ringvia*-procent på ca. 57 er noget højere end den tidligere fundne på Vestmannaeyjar (tabel 1); forskellen skyldes muligvis heterogen fordeling af ringlomvierne.

SOUTHERN og REEVE (1941) har set intermediære fugle, som havde en ring på den ene side af hovedet, men ingen på den anden. På Ellidaey fandt jeg to Lomvier, som havde »halvt« udviklet ring på begge sider af hovedet. Den mulige arvegang omtales.

Vingen var kort i forhold til vingelængden hos andre populationer af nominatformen (fig. 4); men en del af forskellen kan skyldes, at mine fugle blev målt få måneder før de skulle have fældet. Næbbet var lidt længere end på Islands vest- og nordkyst, hvilket er i overensstemmelse med ALLENS regel (fig. 4). Næbhøjden svarede til andre *aalge*-populationers; de norske fugle har dog kraftigere næb (fig. 4).

Alle fugle på nær fem havde mørke pletter på undervingedækfjerene; Lomvier fra Vestmanneyjar vil være svære at adskille fra de færøske Lomvier, som SALOMONSEN (1932) beskrev som en selvstændig underart (fig. 5).

Lomvierne på Ellidaey passer fint ind i en klin fra Nordamerikas østkyst til Norge (fig. 4 og 5). Ringlomviernes mål (fig. 1-3) afveg ikke signifikant.

Skælbeklædningen på siderne og forkanten af

tarsen var hos de fleste gulbrun til mørkebrun, hos to gul og hos ni sort.

To Lomvier var øjensynlig i færd med at fælde næbskeden, et fænomen som kendes hos Lunde *(Fratercula arctica)*. Det er ikke tidligere beskrevet for Lomvie.

Èn fugl var begyndt på efterårsfældningen, halvanden måned før de fleste begynder. Ingen viste i fjerdragten tegn på at være første- eller andetårs fugle.

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MS received June 22nd 1971.

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