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THE BLACK-WINGED GUILLEMOT (*URIA GRYLLE* MUT. *MOTZFELDI* BENICKEN)

(MISCELLANEOUS NOTES ON GREENLAND ORNITHOLOGY V)

BY

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WITH 4 FIGURES IN THE TEXT

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The history of the Black-winged Guillemot (*Uria motzfeldi* Benicken) shows that this bird since its description more than hundred years ago always has been a puzzle to students. However, there is no doubt that it forms a melanistic mutant (colour-phase) of the Black Guillemot (*U. grylle* (L.)), and the question of the status of *U. motzfeldi* must now be said to be definitely settled. The first student who recognized its true status as a variety of *U. grylle* is F. FABER (1827, p. 639) who says that the Black Guillemot has a "*variatio extraordinaria*" which is "*tota nigra*", although he in a previous paper (1824, c. 981) supposed a very close relationship between this variety and *U. lomvia* (L.). Later H. SCHLEGEL(1844, p. 106) says that the Black-winged Guillemot "ne paraît former qu'une variété accidentelle de l'*Uria grylle*". Finally, R. COLLETT (1895, p. 13) in an excellent paper comes to the same conclusion, and in recent text-books dealing with arctic birds (*e. g.* H. SCHALOW 1906, p. 124; E. HARTERT 1922, p. 1775) the Black-winged Guillemot is not even mentioned. However, in a monograph of the Guillemots L. STEJNEGER (1884, p. 210) still maintains *U. motzfeldi* as a distinct species which he supposes to be most nearly related to the pacific *U. carbo* Pall. This species is entirely black, missing the white wing-patch as in *U. motzfeldi*, but possesses a whitish orbital area. On account of STEJNEGER's considerations R. RIDGWAY (1919, p. 743, foot-note) says about *U. motzfeldi*: "It is clear, from the measurements given, that this little-known bird can not be a phase of *U. grylle*, as so many have conjectured". As a matter of fact, there is no evidence in favour of STEJNEGER's assumption, as will be shown below.

Although *U. motzfeldi* has been so much discussed no student has ever made a detailed study of this species, owing to lack of material. Many ornithologists have given their opinion on this bird and have in some instances published papers of some length on this subject without having even seen a single specimen of *U. motzfeldi.* In all other publications only one single specimen has been available to the student for examination. Some interest, therefore, should be attached to a description of the large collection of Black-winged Guillemot in the Zoological Museum in Copenhagen. An investigation of *U. motzfeldi* is important

especially to the student of Greenland ornithology, as this bird is so intimately connected with Greenland, only one (or perhaps two) specimens with certainty being recorded outside this country.

Greenland records.

Below are given all records known from Greenland. In the map fig. 1 are shown all Greenland-records of which the exact locality is known; the numbers given on the map correspond to the numeration of the specimens below.

1. The type-specimen of *Uria Motzfeldi* Benicken is the first specimen of the Black-winged Guillemot known from Greenland. BENICKEN in his description (1824, c. 888) does not mention that it came from Greenland, but the fact that he dedicated the bird to Director MOTZFELD[1]), who often sent him birds from Greenland, shows that the specimen originated from this country. Further F. FABER (1824, c. 981), who described the same specimen under the name *Uria unicolor*, says that he saw this bird in the collection of BENICKEN, "die er von Gröenland erhalten hatte".

The bird is described as follows by BENICKEN (1824, c. 888): "Das ganze Gefieder russfarbig schwarz, am Unterleibe etwas ins Graue übergehend, die Schwungfedern bräunlich schwarz". FABER (1824, c. 981) says it was "einfarbig rothbraun über den ganzen Körper". C. L. BREHM (1826, p. 988) has examined the same specimen—which he calls *Uria unicolor* Benicken (*sic!*)—and says that it "schwärzlich braun aussieht". In another description (1831, p. 985) he says that "sie ist am ganzen Körper braun". The history of this specimen is given by L. STEJNEGER (1884, p. 210).

2. A specimen was shot at Holsteinsborg about 1833 and sent to the Zoological Museum by the Danish botanist Dr. J. VAHL, who in this period collected plants and animals in Greenland for the Botanical and Zoological Museums in Copenhagen. The specimen is now, unfortunately, lost. It was said to be "entirely black" (H. WINGE 1898, p. 215).

3. A specimen was shot at Fiskenæsset in Godthaab District about 1844 and sent by Governor O. V. KIELSEN to the Zoological Museum where it is still kept. The specimen is mentioned by H. WINGE (1898, p. 215). It is pictured fig. 2, no. f.

4. C. HOLBØLL (1842, p. 453) says that he once has shot in Greenland a specimen of *U. grylle* "which was entirely black, missing the

[1]) PETER HANNING MOTZFELD (1774—1835) was 1801—17 sheriff in North Greenland and from 1817 member of the Direction of the Greenland government.

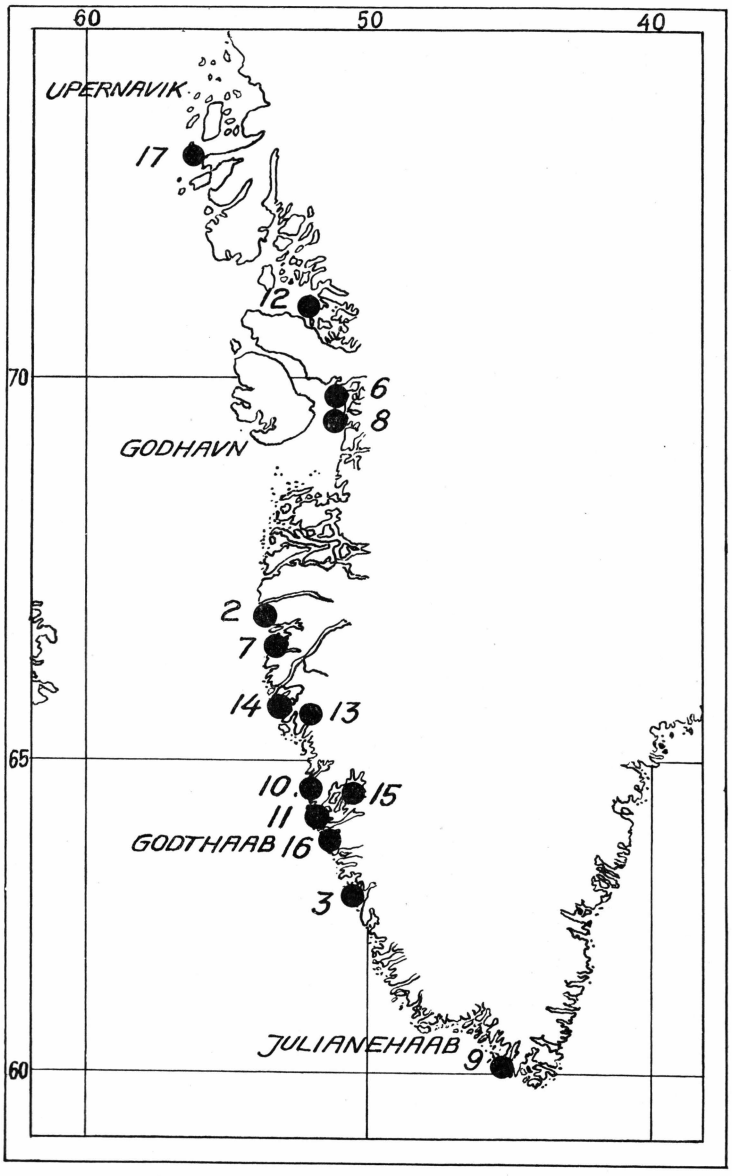


Fig. 1. Occurrences of the Black-winged Guillemot in West Greenland. The numbers correspond to the enumeration in text (p. 4). The numbers 1, 4 & 5 are not marked down in the map as the localization of these specimens is only "West Greenland".

white speculum". This specimen is unfortunately not preserved in any collection.

5. In the Rijksmuseum van Natuurlijke Historie in Leiden a specimen of *U. motzfeldi* is kept which was secured in West Greenland

about the middle of the 19th century. H. SCHLEGEL (1844, p. 106) states that "nous venons d'en recevoir un individu du Groënland". In another paper (1867, p. 20) he says about a specimen of "*U. unicolor*" in the Leiden Museum: "Individu au plumage d'un noir enfumé absolument uniforme, Groënland, acquis en 1859, un des types de l'*Uria unicolor* de Faber". The latter statement no doubt is due to a mistake, unless BENICKEN's specimen has been acquired by the Leiden Museum, and this does not appear to be the case. Dr. BÜTTIKOFER says about this subject *in litt.* to R. COLLETT: "I am quite unable to say upon what reason Prof. S. declared the specimen in question to be one of the types of *U. unicolor* of Faber. On the bottom of the stand is only mentioned that the specimen was obtained in 1859 from CONRADSEN, a dealer in Copenhagen; but in the letters from that dealer, which are still present, this bird is not mentioned. But notwithstanding this lack of evidence, we are not entitled to disbelieve SCHLEGEL's statements, unless we might find the evidence that the type or types are all found elsewhere" (R. COLLETT 1895, p. 9). According to SCHLEGEL's publications it appears that two specimens were preserved in the Leiden Museum, one mentioned already 1844 and one acquired 1859, the latter possibly being the type of *U. unicolor* which came to Leiden through a dealer in Copenhagen. The only specimen which now is kept in the Leiden Museum has been described by BÜTTIKOFER in a communication to R. COLLETT: "The whole plumage including the under wing-coverts and the base of the inner web of the quills, uniform sooty black, faintly glossed with oily green" (R. COLLETT 1895, p. 12).

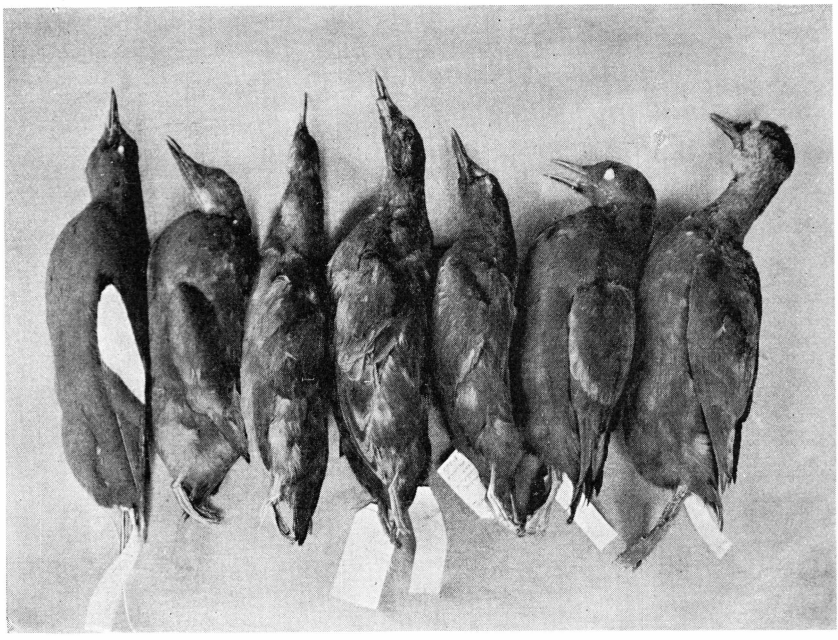
6. A specimen (a female) was shot Sept. 1890 at Ritenbenk and by Inspector E. FENCKER forwarded to the Zoological Museum where it is still preserved. It is mentioned by H. WINGE (1898, p. 215). It is pictured fig. 2, no. g.

7. R. MÜLLER (1906, p. 138) says that he has himself "shot a young Guillemot, just fledged (31st Aug. 1891) which was jet-black without any indication of speculum". He does not mention where this specimen was shot, but as he was Governor in Holsteinsborg District at this time (cf. L. BOBÉ 1921, p. 91) the bird must have been shot here. The specimen came into Inspector FENCKER's collection, which, a few years later, (about 1894) was forwarded to the Zoological Museum. It is still kept here; it is labelled "Holsteinsborg 31st Aug." (but no year) and it is stated to have come from FENCKER. H. WINGE (1898, p. 215) mentions this specimen, only saying "a specimen from Holsteinsborg 31st Aug.; from FENCKER." It is pictured fig. 2, no. c.

8. A specimen (a male) was shot Oct. 1891 at Ritenbenk and by Inspector FENCKER forwarded to the Zoological Museum. It is mentioned by H. WINGE (1898, p. 216) who describes it as "having black shoulder-

patch" (probably error for wing-patch) "but else in the usual light winter-dress." It is pictured in fig. 3, no. b.

9. A specimen (a male) was shot at Nanortalik in Julianehaab District 12th Nov. 1909 and by Mr. HASTRUP sent to E. L. SCHIØLER in whose museum it was kept until 1932 when his collection was removed



a *b* *c* *d* *e* *f* *g*

Fig. 2. A series of Black-winged Guillemots (*motzfeldi*) from West Greenland, left (no. a) the normal phase (*grylle*).

a. Upernavik ♀ ad..... 19. 6. 1936 (normal phase)
b Godthaab ♂..... 20. 8. 1911 (black-winged phase)
c. Holsteinsborg..... 31. 8. 1891 (— — —)
d. Evighedsfjorden ♀ .. 16. 8. 1917 (— — —)
e. Nanortalik ♂ ..... 12. 11. 1909 (— — —)
f. Fiskenæsset..... about 1844 (— — —)
g. Ritenbenk ..... Sept. 1890 (— — —)

to the Zoological Museum in Copenhagen, where the specimen now belongs. The bird is mentioned by E. L. SCHIØLER (1911, p. 78) who describes it as "a uniform black Guillemot without any white wing-patch. It is a male, the legs are intensely red as in adult birds; it is peculiar that no trace of a coming winter-plumage is to be found." This specimen is pictured fig. 2, no. e, & fig. 3, no. d.

10. A specimen (a male) was shot at Godthaab 20th Aug. 1911 and was sent to Mr. C. G. BANGERT in Copenhagen who presented it to the Zoological Museum where it is kept now. This bird also is mentioned by E. L. SCHIØLER (1911, p. 79) who describes it as follows: "The bird

is a young male, about three months old, but without any trace of the usual juvenile plumage." It is pictured in fig. 2, no. b, & fig. 4, no. a.

11. A specimen (sexed as male) was shot at Godthaab 10th Aug. 1915 and sent to the Zoological Museum in Copenhagen. It was subsequently with some other Greenland birds sent to the Dresden Museum in exchange and was described in a paper of some length by A. JACOBI (1917, p. 125). He describes it as follows: "Der Vogel ist über und über kohlschwarz, am Kopf, Hals und Rücken mit schwachem, bläulichem Glanze, nicht grün wie bei normalgefärbten Stücken. Nur auf der Unterseite des Flügels sind die Innenfahnen der Handschwingen und die Handdecken aschgrau, letztere etwas heller und mit schmalen dunklen Säumen. Die Stelle des Flügelspiegels zeigt ein nur wenig matteres Schwarz an, das an den verdeckten Federbasen ebenfalls düstergrau ist."

12. A specimen was shot at Umanaq 29th Aug. 1916 and by Dr. A. BERTELSEN sent to the Zoological Museum, where it is kept now (in spirit). It is mentioned by A. BERTELSEN (1921, p. 176) who only calls it "a dark variety".

13. A specimen (a female) was shot at Evighedsfjorden in Sukkertoppen District 16th Aug. 1917 and by Mr. L. P. NIELSEN sent to E. L. SCHIØLER's collection (now in the Zoological Museum in Copenhagen). This record has not been published before; the bird is pictured in fig. 2, no. d.

14. A specimen (a female) was shot at Kangâmiut in Sukkertoppen District the 2nd Febr. 1918 and by Mr. L. NIELSEN sent to E. L. SCHIØLER in whose collection (now in the Zoological Museum) it is kept. This specimen has not previously been described; it is pictured in fig. 3, no. c.

15. A specimen (a male) was shot at Godthaabsfjorden 10th Oct. 1928 and is now kept in the bird-collection in the seminary of Godthaab. It is described by K. OLDENDOW (1933, p. 107) as follows: "It is a colour-phase, being a young bird in usual winter-dress, with entirely black wings *without the white wing-patch.*"

16. A specimen (a female) was shot at Narssaq in Godthaab District 28th Nov. 1928 and is now kept in the bird-collection in the seminary of Godthaab. It is described by K. OLDENDOW (1933, p. 107) as follows: "It is entirely black, belonging to the form which has been separated as a distinct species, *Cepphus motzfeldi.*"

17. A specimen was shot at Prøven in Upernavik District the 12th July 1938. The wings were sent by Mr. A. LUND-DROSVAD to Director K. OLDENDOW who presented them to FINN SALOMONSEN; the wings are now kept in the Zoological Museum. Mr. LUND-DROSVAD says (*in litt.* to Director OLDENDOW) that the bird was otherwise like the common Black Guillemot. This record, which constitutes the most nothernly

occurrence of the Black-winged Guillemot, has not previously been published.

Thus a total of 17 records are known from Greenland, 14 of which have previously been published, the remaining three (nos. 13, 14 & 17) being added in this paper. Of these 17 specimens no less than 10 (nos. 3, 6, 7, 8, 9, 10, 12, 13, 14, & 17) are kept in the Zoological Museum in Copenhagen, one (no. 5) is kept in the Leiden Museum, one (no. 11) in the Dresden Museum, two (nos. 15 & 16) in the seminary in Godthaab, and two are now lost (one in the former BENICKEN-collection in Schleswig (no. 1) and one in the Zoological Museum in Copenhagen (no. 2)) and one (no. 4) has never been preserved.

Records outside Greenland.

Only a few and as a rule rather uncertain records of the Black-winged Guillemot outside Greenland are known, *viz:*

1. F. FABER (1824, c. 981) was told by the owner of a fowling-cliff in North Iceland that a pair of "*Uria troile*" (= *U. aalge* (Pont.)) which were entirely reddish-brown had bred in the fowling-cliff and were of the same life-habits as "*Uria Brünnichii*" (= *U. lomvia* (L.)). FABER confounds these birds with his own *U. unicolor* (= *U. motzfeldi* Benicken) and the statement above cannot in any way be said to be an Iceland record of the Black-winged Guillemot.

2. A. NEWTON (1865, p. 518) mentions a Black-winged Guillemot in the British Museum (Nat. Hist.) which is "entirely black all over. This specimen was bought by Mr. ARGENT, and said to come from Iceland." This record also is a very vague basis for the statement of an occurrence of *U. motzfeldi* in Iceland; the specimen may just as well have originated from Greenland. In a communication to R. COLLETT this specimen is described by OGILVIE GRANT as follows: "It is considerably smaller than *U. grylle*, the wing being 6.5 inches (about 164 mm), tail 1.11 inches (48 mm)" . . ." the basal half (about) of the inner web of the primary quills and their coverts (both upper and under) whitish; a few feathers on the crown, mantle and breast are fringed with whitish buff" (R. COLLETT 1895, p. 10 & 12).

3. L. KUMLIEN, a member of the Howgate Polar Expedition 1877—78 mentions (1879, p. 105) under the heading of *Uria grylle* that he has seen "three entirely black specimens, which I considered to be *U. carbo*. One was procured in Cumberland, but was lost, with many others, after we arrived in the United States. I have examined *carbo* since in the Smithsonian Collection, and my bird was nothing but a melanistic specimen of *U. grylle*." Probably it was a *U. motzfeldi* which

KUMLIEN captured at Cumberland Sound, but owing to the disappearance of the specimen the matter cannot be satisfactorily settled.

4. The remarks quoted below by a single student have been cited as an evidence of the occurrence of the Black-winged Guillemot at Heligoland. Under the heading of "*Uria mandtii* Lcht." H. GÄTKE (1891, p. 607) gives the following description: "An einer hier (*i. e.* Heligoland) im Sommer geschossenen schwarzen Lumme meiner Sammlung, deren ganzes neuvermausertes Kleid, mit Ausnahme der Flügel, dem der vorhergehenden Art gleichgefärbt ist, erstreckt sich an den Flügeln die Mauser erst auf die dem Unterarm nächste Hälfte des grossen weissen Flügelfleckes; diese neuen Federn sind aber nicht weiss, sondern einfarbig schwarz, so dass bei einem derartigen Fortschreiten des Federwechsels die ganze Aussenseite des Flügels einfarbig schwarz geworden wäre." GÄTKE further states that it is a young bird in first summer, *i. e.* one year old. This description sounds very peculiar. The statement that the white feathers of the wing-patch should be replaced by black ones at the first moult is probably due to a mistake and is at least quite the contrary of the condition in *motzfeldi* in which phase we know that the melanistic plumage is already attained in the juvenile stage. So, this bird cannot have anything to do with the actual *motzfeldi.*

5. The only quite certain occurrence of mut. *motzfeldi* outside Greenland is the record published by R. COLLETT (1895, p. 4) of a specimen (a female) shot at Kristiansund in Norway 16th Nov. 1894; the specimen is pictured in COLLETT p. 6. The following description is given: "Length of wing 160 mm, exposed culmen 35 mm. The plumage was slaty black, there being only underneath an almost inperceptible shade of brown. The wing-patch was of the same colour as the back, without a single white or whitish feather . . . On the under side of the wing, the longest coverts were of a grayish white colour, the remainder black. On the wing-feathers themselves, the basal part of the inner web along the edge was white, both on the primaries and the secondaries. The tips of the feathers (to a breadth of about 40 mm), the region along the shafts, and the shafts themselves, were black" (R. COLLETT 1895, p. 5).

General Distribution.

The Black-winged Guillemot, which forms a colour-phase (mutant) of the Black Guillemot, occurs along the western coast of Greenland from where no less than 17 records are known, all based on specimens shot and captured. Most of these birds were secured in Holsteinsborg, Sukkertoppen and Godthaab Districts (cf. fig. 1), but this is no doubt due to the fact that in these places a good many Danish officials have been interested in ornithology. Nevertheless, the number of records is

rather small and the Black-winged Guillemot must be said to be very rare. In spite of the very large number of Black Guillemots captured by Greenlanders and by Danish officials every year the black-winged mutant is only mentioned a few times in the large ornithological literature from Greenland, and the Eskimos have no special name for it. I have personally travelled along the whole coast of West Greenland (except Umanak District and the northern part of Disco bay) and have never seen this bird although I kept a special look out for it. The only place where it possibly may be more common is in Umanak District, according to the description by A. BERTELSEN (1921, p. 176): "Although the black colour-phase of *Cepphus grylle* is known only in a restricted number of adult birds, which by some students have been regarded as a distinct species (*Cepphus motzfeldi*), a dark variety among the young birds is here (*i. e.* in Umanak District) commonly met with, constituting perhaps 1—2 per cent of these. A specimen of this variety, shot at Umanak 29th Aug. 1916 I have forwarded to the Museum in spirit." This is the bird no. 12, mentioned above (p. 8). BERTELSEN's statement that the black-winged variety is more common among the young than among the adult birds will be discussed below (p. 12).

It is noteworthy that no *motzfeldi* has been captured in East Greenland, although the Eskimos of Angmagssalik are known to be very keen hunters who have enriched Danish bird-collections with many novelties and rarities.

Outside Greenland the Black-winged Guillemot has been said to have been found 4 or 5 times, but all these records (except one) are very uncertain. Two alleged Iceland records are very doubtful, one from Heligoland does not fit the description of *motzfeldi*, one from Cumberland Sound (Baffin Land) was based on memory (skin being lost); the only quite certain non-Greenland record is the Norwegian bird described by COLLETT, mentioned above p. 10 as no. 5.

Description of the Black-winged Guillemot.

Previous authors have only described a single specimen of mut. *motzfeldi*. COLLETT (1895) however, tried to make a comparison of three specimens, but only one was available for his personal examination. In the following paragraphs a description will follow of the Black-winged Guillemot based on the material in the Zoological Museum in Copenhagen, altogether 10 specimens.

Measurements.

In table I, below, are given measurements of wing and culmen and number of rectrices.

Table I. Measurements of Black-winged Guillemots (*motzfeldi*).

Locality & Date	Sex & Age	Wing (in mm)	Culmen (exposed) (in mm)	Number of rectrices
Fiskenæsset about 1844	ad.	169	30.5	12
Ritenbenk Sept. 1890	♀ juv.	162	24	12
Holsteinsborg 31.8.1891	juv.	155	27	12
Ritenbenk Oct. 1891.....	♂ juv.	161	28.5	12
Nanortalik 12.11.1909.....	♂	163	25	12
Godthaab 20.8.1911.....	♂ juv.	142	23.5	12
Umanak 29.8.1916.....	juv.	(in growth)	..	..
Evighedsfjorden 16.8.1917 ...	♀ ad.	165	30	11 (12)
Kangâmiut 2.2.1918.....	♀ (ad.)	164	26	11 (12)
Prøven 12.7.1938	ad.	160	..	..

Judging from table I the measurements of the Black-winged Guillemot do not differ from those of the common Black Guillemot, as was to be expected. R. COLLETT (1895, p. 11) has already given his opinion that the black mutant "scarcely differs from *U. grylle*" in size. However, this only holds good of the adult specimens; in the young birds in table I the measurements are slightly smaller. This is quite natural as these specimens were captured in autumn when they are newly fledged (cf. the remark by MÜLLER quoted above, p. 6). The number of rectrices are here added to show that it does not differ from that in the ordinary *U. grylle* (12); in *U. carbo* the number is 14. When the number of rectrices in table I is stated to be 11 (12) it means that only 11 could be counted, the twelfth feather being lost. In all three specimens mentioned by R. COLLETT (1895, p. 11) the number of rectrices also was 12.

Sex and Age.

From table I it appears that the melanistic mutant occurs in both sexes in about the same number; of the birds which were sexed three were ♂♂ and three ♀♀[1]). Of the 8 specimens of which the age could be determined with certainty three were adult birds and five were young ones. The slight predominance of young birds is no doubt due to the fact that the newly fledged juveniles are more easily accessible to the hunters than the adult birds, which are more wary.

As remarked above (p. 11) BERTELSEN states that about 1—2 per cent of the young *U. grylle* in Umanak District are melanistic whereas melanism occurs only very rarely among the adult birds; *i. e.* melanism

[1]) Besides, the two specimens kept in the seminary in Godthaab (nos. 15 & 16) are stated to be ♂ and ♀, respectively.

should be more or less restricted to the young birds and usually will be lost in the adults. Attention is drawn to the fact that in the young birds the feathers of the white speculum have broad black tips and so they may more easily become melanistic than the adult birds with normally pure white wing-patch. As a matter of fact this question cannot be answered with certainty. The three specimens determined as adult may very well be one year old birds which during the subsequent moult are going to exchange the black wing-patch for a white one. However, in my personal opinion this is not the case; at least those specimens of *motzfeldi* which acquire a totally black winter-plumage (cf. below, p. 16) no doubt will keep the black speculum for life. Besides, it appears that the bird dealt with below (p. 15) as no. 14 is an adult bird in second winter.

Of the twelve specimens exactly dated ten were captured in the autumn (from mid-Aug. to early Nov.). This is probably due to the fact that the economically very important Brünnich's Guillemot (*U. lomvia* (L.)) in early Aug. leaves its breeding-places and the Greenlanders from this time go out shooting this and related sea-birds on the coasts of West-Greenland, until the ice makes hunting too difficult.

Plumage and Moult.

The plumage and moult of every specimen examined is described below. The numeration of the specimens corresponds to that given above (p. 4).

3. Fiskenæsset ad. about 1844. Plumage: Entirely black, the colour being about that in normal *U. grylle*; greater under wing-coverts and base of inner web of primaries greyish-white; speculum about the same colour as rest of wing, perhaps a trifle paler brownish. Moult: No moult, with the exception that a few down on upper-parts are growing.

6. Ritenbenk ♀ juv. Sept. 1890. Plumage: Entirely blackish, but upper- and under-parts paler than in *U. grylle*, being more brownish-black without gloss; greater under wing-coverts and base of inner web of primaries only slightly paler than rest of wing; speculum practically as dark as rest of wing; throat paler than rest of under-parts, more greyish. Pale throat, weak and thin bill and downy feathers (especially on head and neck) indicate that it is a juvenile bird. Moult: Very dense moult into winter-plumage. Uniform white feathers, totally or partly in quill, still not visible in the plumage, are growing densely on upper breast but not on rest of under-parts; on upper-parts new feathers are growing rather densely, those on the shoulders being black with very broad white edges, those on back being black with white tips, those on rump being entirely white; no moult on head. This bird no doubt

moults in a normally coloured winter-plumage in which it is distinguished from the common phase only by its black speculum.

7. Holsteinsborg juv. 31st Aug. 1891. Plumage: Entirely blackish, but upper- and under-parts paler than in *U. grylle*, being more brownish-black without gloss, under-parts almost sooty brown; greater under wing-coverts and base of inner web of primaries greyish-white, contrasting with rest of wing; speculum only slightly paler than rest of wing; throat paler than rest of under-parts, more greyish. Pale throat, weak and thin bill and downy feathers (especially on head and neck) indicate that it is a juvenile bird. Moult: Growth of winter-feathers has just been initiated. On back a fairly large number of black or almost black feathers are growing, totally or partly in quill, on shoulder a few feathers with black base and broad white edges growing, on upper breast a few (3—4) pure white feathers entirely in quill are growing; no moult on rest of under-parts, head, neck and rump. This bird appears to moult in a normally coloured winter-plumage.

8. Ritenbenk ♂ juv. Oct. 1891. Plumage: In winter-plumage, the upper-parts not differing from the colour of the normal phase, *i. e.* being pied black and white; under-parts white with many black-brown juvenile feathers retained on vent, lower breast and fore-neck, giving the under-parts a speckled appearance (cf. fig. 3, no. b); upper breast, flanks and throat almost pure white without any retained juvenile feathers; greater under wing-coverts and base of inner web of primaries whitish grey; speculum only slightly paler than rest of wing. Downy or very loose feathers on neck and large amount of retained juvenile feathers show that this is a bird in first winter. In this specimen all blackish feathers are faded to a brownish hue owing to the fact that the bird has been mounted in the museum and exposed to light for more than 40 years. Moult: None.

9. Nanortalik ♂ 12th Nov. 1909. Plumage: Entirely blackish, the under-parts being dark sooty-brown, the upper-parts blackish-brown with a slight gloss, the coloration thus being slightly paler than in the summer-plumage of the normal *U. grylle;* under aspect of wing blackish-brown; speculum of the same colour as rest of wing. It is probably a young bird in first winter, but the age is impossible to determine[1]). Moult: Many entirely black feathers are growing on upper breast and flanks but not on rest of under-parts; also a few black shoulder-feathers are growing, but no growth on rest of upper-parts. The new feathers are dark brownish-black with a slight gloss. The feathers of lower breast and vent, where no moult takes place, are paler and more worn and may be retained juvenile feathers. All tends to show that this specimen

[1]) SCHIØLER, as mentioned above p. 7, states that the feet were "intensely red as in adult birds."

acquires a uniform black winter-plumage, the moult in this period (mid-Nov.) about to cease.

10. Godthaab ♂ juv. 20th Aug. 1911. Plumage: Entirely blackish but paler than in the normal *U. grylle*, the under-parts being sooty-brown, the upper-parts somewhat more greyish-black; under aspect of wing blackish-brown; speculum of the same colour as rest of wing; throat paler than rest of under-parts. Pale throat, weak and thin bill and rather loose feathers on neck indicate that it is a juvenile bird. Moult: None.

12. Umanak juv. 29th Aug. 1916. Plumage: Entirely blackish, being of the same colour as the other juvenile specimens of the Black-winged Guillemot, *e. g.* no. 10, above, *i. e.* sooty-brownish under-parts, blackish wing and upper-parts, throat paler more greyish; speculum of the same colour as rest of wing, but on the under-wing the greater coverts are greyish white; remiges still in moult. Moult of body-plumage has not been examined (the specimen is preserved in spirit).

13. Evighedsfjorden ♀ ad. 16th Aug. 1917. Plumage: An adult bird with very worn remiges, stout and thick bill and entirely blackish plumage being of the same colour as abraded and worn Aug.-specimens of *U. grylle;* greater under wing-coverts and base of inner web of primaries milky white; speculum slightly paler than rest of wing. Moult: Growth of winter-feathers has already started. On upper-parts only a few black-and-white mottled feathers entirely in quill are growing on hind-neck; on under-parts a dense growth of new winter-feathers totally or partly in quill takes place, the new feathers as a rule being pure white but some having brownish shaft-streaks and base. This bird thus has commenced to moult into an almost normal winter-plumage, only some feathers on under-parts being slightly melanistic.

14. Kangâmiut ♀ (ad.) 2nd Febr. 1918. Plumage: An interesting partly melanistic winter-plumage, shown in fig. 3, no. c. The upper-parts are mainly black, some shoulder-feathers with rather narrow white borders, many feathers of head and neck with fine white edgings and some feathers on rump with white edges. The under-parts are mottled black-and-white owing to the fact that the feathers are all particoloured; no feather is entirely white or entirely black, all are intermediate being mottled with black and white, in some feathers the black colour predominating, in others the white; the distribution of the feathers with black and with white colour prevailing is quite at random, feathers with all different types of pattern are mixed together; thus the under-parts get a speckled appearance. The speculum is somewhat paler than the rest of wing, the coloration of the black parts of the plumage is almost as in the normal *U. grylle* (summer-plumage), only slightly paler. The fact that no juvenile, brownish-black feathers are retained on

under-parts tends to show that this specimen is an adult bird, at least in second winter. It is, however, not possible with certainty to determine the age of this specimen. Moult: None.

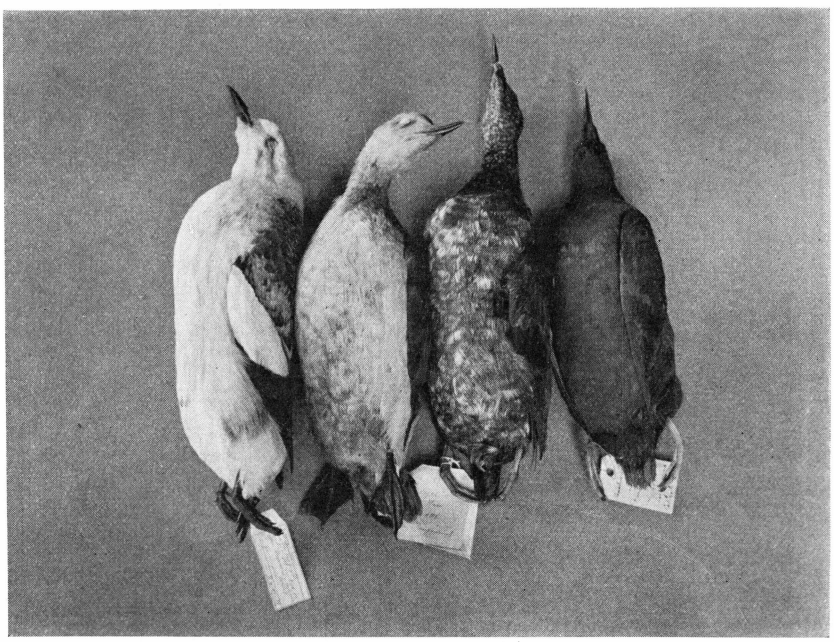
17. Prøven ad. 12th July 1938. Plumage: Only the wings were forwarded to the Museum; they show that the bird was a very dark one; the under aspect of the wing is blackish-brown; speculum of the same colour as rest of wing. The specimen is a bird at least one year old, being in summer-plumage and no doubt without any moult of the feathers at this time of the year.

Variation in the Melanism.

The description above has shown that the Black-winged Guillemot exhibits a considerable individual variation in the winter-plumage, but only a slight one in the summer-plumage and juvenile dress. In these last, real "black" dresses, the birds are as a rule very uniformly coloured, the only variation being in the coloration of the under-side of wing and in the colour of speculum. In most of the specimens (*i. e.* nos. 3, 5, 6, 9, 10, 12 & 17 and in the Norwegian specimen mentioned p. 10) the speculum is of the same colour as the rest of the wing, not being paler than the remiges, but in some birds (nos. 7, 8, 11, 13 & 14) it is slightly or somewhat paler than the rest of the wing, being sepia-brown, contrasting with the black-brown colour of the remiges. Already H. WINGE (1898, p. 215) mentions that the wing-patch "in some lights appears as slightly paler than the surroundings." More conspicuous is the variation in the colour of the under-side of the wing. In most specimens (*i. e.* nos. 3, 6, 7, 8, 11, 12 & 13 and the Norwegian specimen mentioned on p. 10 and the alleged Iceland specimen mentioned on p. 9) the greater under wing-coverts and the base of inner web of primaries are more or less greyish-white contrasting with the rest of under-wing and constituting the only light parts of the plumage in these melanistic specimens. In some specimens, however, (namely in nos. 5, 9, 10 & 17) these parts of the under-wing are black-brown, of the same colour as the remiges. This variation has already been stressed by R. COLLETT (1895, p. 12).

Much more pronounced is the variation in the coloration of the winter-dress. Of the Greenland specimens 6 are in the black summer-dress and do not show any moult, whereas 8 are moulting into the winter-dress or are already attired in this dress. Of these eight birds four acquire a normal black-and-white winter-plumage, in which they may be distinguished from the normal phase by the black speculum only (and by dark juvenile feathers retained). Three of them (nos. 6 & 7 and probably also no. 15, not examined by me) are still in winter-

moult, one (no. 8) has finished the moult. The four remaining birds show that the melanism may also extend to the winter-plumage. No. 13 is almost normal, only some feathers of the under-parts being slightly melanistic, no. 14 exhibits a peculiar mixture of black and white, every feather on under-parts being particoloured, *i. e.* more or less melanistic, and nos. 9 & 16 don a completely black winter-plumage, the melanism



a *b* *c* *d*

Fig. 3. Variation of winter-plumage in the Black-winged Guillemot (*motzfeldi*), left (no. a) the normal phase (*grylle*).

a. Iceland ♂ ad. ..... 21. 11. 1907 (normal phase)
b. Ritenbenk ..... Oct. 1891 (black-winged phase)
c. Kangâmiut ♀ ..... 2. 2. 1918 (— — —)
d. Nanortalik ♂ ..... 12. 11. 1909 (— — —)

here reaching the extreme limit. In fig. 3 is shown the variation in winter-plumage. The Norwegian specimen described by R. COLLETT (1895) belongs to the last group, attaining a completely black winter-dress.

Sequence of Plumages in the Black-winged Guillemot.

On the base of the material examined it is now possible to give some remarks on the sequence of plumages in the black-winged mutant.

Juvenile: This plumage is always completely melanistic, blackish-brown on the upper-parts, sooty-brown on under-parts, with lighter, more greyish or yellowish throat. The juvenile plumage is thus very

characteristic and shows very little variation. The following specimens are in juvenile plumage: nos. 1, 6, 7, 8, 10 & 12. The juvenile plumage must not be compared with the black, very glossy summer-dress of the normal phase but with the corresponding normal juvenile plumage with white under-parts. It is peculiar, when remembering the large variation in the winter-plumage described above (p. 16), that no intergradations between the normal white and the black type is found in the juvenile plumage. I may, however, refer to a specimen from the Faroe islands (Nolsø juv. 18th Aug. 1919) in the Zoological Museum, in all particulars being intermediate between *motzfeldi* and *grylle*. The specimen is pictured fig. 4, no. b between a juvenile of the common and of the black-winged phase, and it distinctly appears that it forms a transition between these two types. The wings are not fully grown yet; the speculum is almost black, only some small light terminal spots being present; the under-parts are much darker than in the common phase, the upper breast as well as the lower vent and under tail-coverts being almost uniform brownish-black; the upper-parts are almost entirely black, but small light spots are still present on some shoulder-feathers and a few other places.

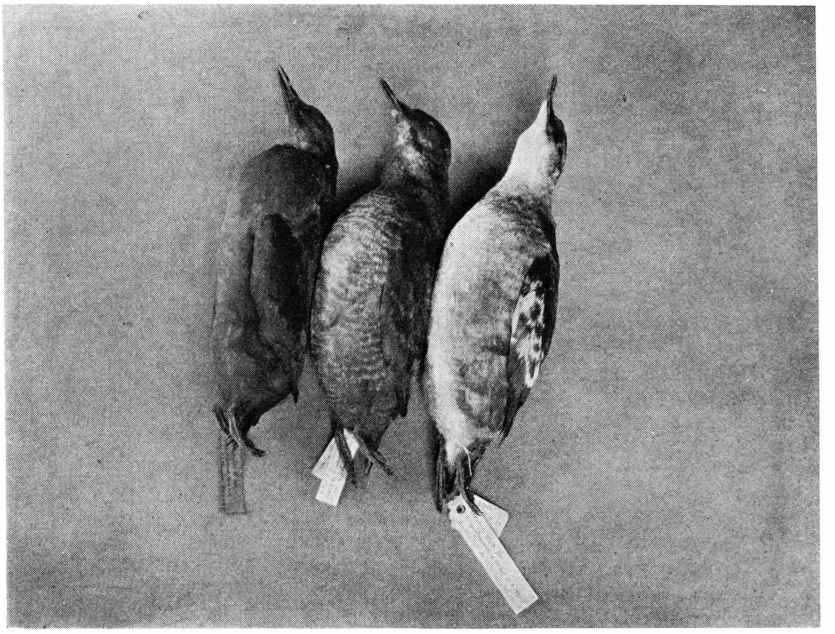
Winter-moult: The moult into winter-dress takes place in the same period as in the common phase, namely from about mid-August to Oct.—Nov. There is the same considerable individual variation in the moulting period as in *U. grylle*. Of 3 Aug.-specimens, examined, 2 had commenced to moult, whereas the third had not yet begun. A single Sept.-specimen was in a very dense moult, an Oct.-specimen had already finished the winter-moult, whereas a Nov.-bird had not yet finished the moult. Probably the moult is always finished in Dec., but no specimens secured in this month have been available.

Winter-plumage: This dress is interesting by its large individual variation described above (p. 16). Some specimens acquire a completely blackish winter-plumage but most birds attain a particoloured white-and-black plumage of the same pattern as in the ordinary phase (*grylle*). It is peculiar that the juvenile dress, which in all cases is completely melanistic, is followed by a normal non-melanistic winter-dress in most cases. It appears that a good number of juvenile feathers on the under-parts are kept in the winter-dress.

Summer-moult: This moult takes place no doubt in Febr.—April but no moulting specimens are available. A single bird from early Febr. (no. 14) is not yet in moult.

Summer-plumage: A few adult birds in summer-plumage were examined (nos. 3, 13 & 17; also the specimen kept in Leiden (no. 5)

belongs here[1]), and the same holds good of the Dresden bird (no. 11)). Judging from this meagre number it appears that the summer-plumage of the black-winged phase is identical with that of the common phase (save the black speculum). When the plumage in some specimens from Aug. is somewhat duller, not so glossy as in the ordinary form, it is



a *b* *c*

Fig. 4. Transition between the normal phase (*grylle*) and the black-winged phase (*motzfeldi*).

a. Godthaab ♂ juv. ..... 20. 8. 1911 (black-winged phase)
b. Nolsø (Faroes) juv. ..... 18. 8. 1919 (transitional —)
c. Kangerdlugssuaq (East Greenland) ♀ juv. . 10. 8. 1932 (normal —)

due to wear and these skins entirely resemble similar abraded specimens of *grylle* from late summer.

Summary.

The Black-winged Guillemot is a colour-phase or mutant of the ordinary Black Guillemot and should be named *Uria grylle* mut. *motzfeldi* Benicken. It is distributed along the West coast of Greenland, whence no less than 17 records are known (cf. map, fig. 1). Outside this country only a few occurrences have been recorded, most of them quite unreliable,

[1]) The fact that the Leiden-specimen is an adult bird makes it very improbable that it constitutes the old type of Benicken's *U. motzfeldi*, as this, according to the description must have been a juvenile.

only one (Norwegian) record being certain. All records in literature are discussed and the large Greenland collection of *motzfeldi* in the Zoological Museum in Copenhagen has been examined. On the basis of this the variation in the melanism and the sequence of plumages in the black-winged phase has been described. The juvenile plumage is always completely melanistic and does not exhibit any special individual variation, and the same holds good of the summer-plumage. The only variation in these dresses affects the coloration of the under-side of wing and the shade of the black speculum. In the winter-plumage, however, the black-winged phase displays a considerable individual variation, about 50 per cent. acquiring a normal black-and-white plumage, and 50 per cent. showing a more or less pronounced melanism, the extreme being reached by specimens attaining a completely melanistic winter-plumage. All intergradations are found between these totally black specimens and birds with normal winter-plumage, as to be seen fig. 3. The remarkable fact that most specimens change the melanistic juvenile plumage for a non-melanistic winter-plumage is emphasized. Perhaps in some specimens the black speculum may be a juvenile character, being revealed in the adult stage.—A juvenile specimen from the Faroes exactly intermediate between *grylle* and *motzfeldi* is described p. 18 and pictured fig. 4, no. b.

LITERATURE

Benicken 1824: Beyträge zur nordischen Ornithologie. — Oken's Isis; Jena.

Bertelsen, A. 1921: Fuglene i Umanaq Distrikt. — Meddelelser om Grønland, Vol. 62.

Bobé, L. 1921: Holsteinsborg Distrikts Historie. — Meddelelser om Grønland, Vol. 61.

Brehm, C. L. 1826: Eine Vergleichung verwandter Vogelarten, etc. — Oken's Isis; Jena.

— 1831: Handbuch der Naturgeschichte aller Vögel Deutschlands. — Ilmenau.

Collett, R. 1895: On a Melanistic Phase of Uria Grylle. — Christiania Videnskabs-Selskabs Forhandlinger, No. 1.

Faber, F. 1824: Beyträge zur arctischen Zoologie, Lieferung 3. — Oken's Isis; Jena.

— 1827: Beyträge zur arctischen Zoologie, Lieferung 8. — Oken's Isis; Jena.

Gätke, H. 1891: Die Vogelwarte Helgoland. — Braunschweig.

Hartert, E. 1922: Die Vögel der paläarktischen Fauna, Vol. 3. — Berlin.

Holbøll, C. 1842: Ornithologiske Bidrag til den grønlandske Fauna. — Naturhistorisk Tidsskrift, Vol. 4.

Jacobi, A. 1917: Artberechtigung, Winterkleid und Melanismus von *Uria mandtii* Licht. — Journal für Ornithologie, Vol. 65, part 2 (Festschr. f. Reichenow).

Kumlien, L. 1879: Contributions to the Natural History of Arctic America. — Bull. of the United States National Museum, No. 15; Washington.

Müller, R. 1906: Vildtet og Jagten i Sydgrønland. — København.

Newton, A. 1865: Notes on the Birds of Spitsbergen. — The Ibis, n. s. Vol. I.

Oldendow, K. 1933: Fugleliv i Grønland. — Det Grønlandske Selskabs Aarsskrift.

Ridgway, R. 1919: The Birds of North and Middle America. — United States National Museum, Bulletin 50; Washington.

Schalow, H. 1906: Die Vögel der Arktis, in F. Römer & F. Schaudinn: Fauna Arctica, Vol. 4. — Jena.

Schiøler, E. L. 1911: Om nogle for Grønlands Fuglefauna sjældne samt to nye Arter, *Chaulelasmus streperus* (L.) og *Passerella iliaca* (Merrem) *typica*. — Dansk Ornith. Foren. Tidsskrift, Vol. 6.

Schlegel, H. 1844: Revue Critique des Oiseaux d'Europe. — Leiden.

— 1867: Muséum d'Histoire Naturelle des Pays-Bas, No. 33, Livr. 9. Urinatores.

Stejneger, L. 1884: Remarks on the Species of the Genus *Cepphus*. — Proceedings of the United States National Museum, Vol. 7.

Winge, H. 1898: Grønlands Fugle. — Meddelelser om Grønland, Vol. 21.

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