

STATUS OF THE "WHITE-EYED" MURRE¹

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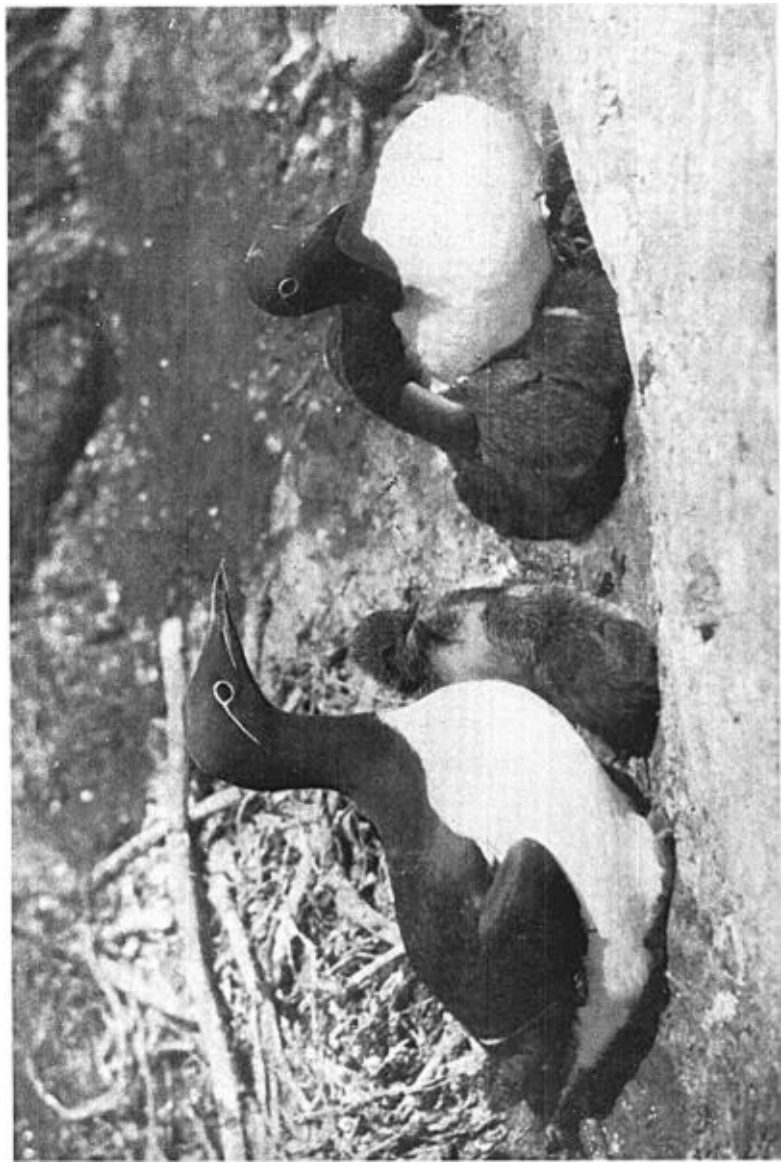
Plate 5

THE systematic position of the "White-eyed" Murre (*Uria aalge aalge*), has long been a controversial issue. Birds with a white line of feathers around the eye and a white streak extending backward along the postocular groove called "white-eyed," "ringed," "spectacled," or "bridled" Murres, were noted by early travelers who wrote about sea-bird colonies and were then, as they are today by some observers, considered a different species from the birds not so marked. These striking birds occur throughout the range of the typically colored members of the Common Murre, *Uria aalge aalge* (Pontoppidan). From time to time specific rank has been officially accorded them, although at present they are not generally admitted to such distinction. Nevertheless the question has neither been dropped nor satisfactorily settled. Recent writers (Oberholser, 1920; Ridgway, 1919) express the belief that the bird should again be given specific recognition. The problem is of special interest to ornithologists, and is also a significant one from the point of view of general biology.

In discussing this problem, A. C. Bent (1919), presented some of the conflicting evidence and left the case undecided, although he seems inclined to regard it as a species. He writes: "Mr. William Brewster (1883), Dr. Louis Bishop (1889), and Mr. C. J. Maynard (1896) all reported this bird in mated pairs on Bird Rock and suggested that it is entitled to specific rank. On my visit to Bird Rock in 1915, eleven Ringed Murres were noted in a group by themselves. Dr. Townsend, the same season, saw about fifteen together in one place, on the south coast of Labrador, all belonging to this form."

Oberholser (1920) proposed *Uria ringvia* for the forthcoming A. O. U. Check-list, but in 1924, before the publication of the Check-list, dropped the suggestion. Ridgway (1919) had used the name *Uria ringvia* and Ogilvie-Grant, in the 'Catalogue of the Birds of the British Museum' (1898), lists the form as a variety. McWilliam (1930) has summarized the discussion from the European point of view. He calls attention to the European records which show that these white-eyed birds occur much more commonly among the northern British breeding colonies than they do among the southern British colonies. He says: "I do not know of any colony in Britain where it is entirely absent and, on the other hand, there is no colony known where it alone is found." From Ussher and Warren's interest-

¹ This study is part of a thesis for the Department of Ornithology, Cornell University. It was read before The American Ornithologists' Union at the Toronto meeting, October 1935.



WHITE-EYED AND NORMAL MURRES WITH THEIR YOUNG

ing book, 'The Birds of Ireland,' we learn that the White-eyed Murre occurs in all colonies of the species, but scarcely one white-eyed to fifty of the ordinary type, and that the white-eyed are never grouped together. On the Isle of Man little is known about these birds except that a few have been seen among ordinary birds on Spanish Head. In North Wales one seldom meets with them. One report gives one White-eyed Murre to two or three hundred of the ordinary type. In West Scotland, a count of over 1500 dead birds disclosed the presence of two of this kind. Grey estimates that there is only one white-eyed bird to five hundred of the others. In the Hebrides where the Northern Murre breeds they are much more common. The birds of Scotland and Wales are, I believe, generally considered to be of the southern British form. A census made in the Outer Hebrides in 1871 by Feilden and Harvie-Brown gives 24 of the white-eyed individuals among 126 birds. Harvie-Brown states that from statistics collected over many years, one to five is about the average in the Outer Hebrides.

Dr. Harrison F. Lewis (1926) has shown from his banding records in 1925 that about 15.7 per cent of the birds breeding along the north shore of the Gulf of St. Lawrence belong to this type, and he also recaptured two of these individuals, marked in a previous year, which had retained the same character. Later, with a larger number available for the year 1929, he found (Lewis, 1930) 128 out of a total of 724 adult Common Murres, or 15.7 per cent of white-eyed individuals. He noted that these were "well scattered among the other Common Murres; some being present in every breeding colony." In one group of fifty birds captured there were eight white-eyed ones.

Thus we have indicated a few of the more important reports in the literature bearing on this discussion. Most observers of sea-bird colonies do not seem to realize the unnatural condition which their presence may cause among the birds, both in behavior and in the distribution within the colonies. A few observers in Europe and also in America have seen a white-eyed and a typical bird paired together. Several other observers seem to think that this is not the case, so that we have many conflicting deductions resulting from little reliable evidence.

Regarding the relative numbers of White-eyed Murres in different parts of the range, the counts which have been reported are very interesting. From these, perhaps, we may approximate the relative distribution as follows: in North America 16 per cent, in the Hebrides 25 to 30 per cent, in southern British waters less than 1 per cent, and in the Bear Island region from 30 to 50 per cent.

During two summers of field observations which took me to most of the large breeding colonies along the north shore of the Gulf of St. Lawrence, I have gathered considerable data pertaining to these birds which, with

other material supplied largely by Dr. Lewis, I believe is ample to show that this form, *Uria ringvia*, has no claim to specific distinction. My findings are presented in summary form as follows:

1. The white-eyed individuals of the Atlantic Murre mate with normal or typically colored birds more often than with one another. Of five mated pairs that I have studied at some length from a blind, four were mixed matings; that is, a white-eyed individual was mated with a typical bird. White-eyed birds seen courting on the rocks have most often been involved with a typical bird. Clearly the matings are purely random.

2. The white-eyed birds are on the whole fairly evenly distributed throughout the nesting colonies. I have never seen any indication of their grouping together although it is not uncommon to see three or more in close proximity within a colony.

3. The eggs belonging to pairs which involve one or more white-eyed birds exhibit the normal range of color types. However, I have not been able by sexing birds to determine that a given egg was produced by a white-eyed female in more than one case. This egg was of the blue-green color type. On this point many reports are conflicting. But, since we now know that in the case of the Murre, the sexes alternate in the performance of the incubation duties, and that the sexes cannot be distinguished by sight, it seems certain that most of the observers who have reported on the color of the egg of *ringvia* should have been uncertain about the egg reported belonging to such a female. It might just as well have been a case of a white-eyed male tending the egg of his mate, a typically colored female. More definite data regarding the color of eggs of known parentage are desirable.

4. Young birds with one or two white-eyed parents are indistinguishable from all the others at hatching and up to the time when they leave the nesting islands at approximately three weeks of age. Experiments with young birds taken when ready to leave the islands and kept in captivity, indicate that the character of the juvenal plumage is clearly observable before they leave the nesting colonies. This leads me to believe that the white-eyed character does not become apparent until the adult plumage is developed. I have found no signs of it in these young and juvenal birds.

5. Dr. Lewis has shown through his banding activities that adult breeding birds with the white-eyed characteristic retain it from one year to another.

6. The white-eyed adult individuals are representative of *Uria aalge* in showing the normal variations in size and measurements.

CONCLUSIONS

The foregoing evidence seems to settle the question of specific distinction but leaves us with the more interesting question, What is the explanation of this white-eyed character? My belief is that we have here a hereditary characteristic operating as a recessive. Whether it is due to the operation of one gene or to the collective influence of more than one, I do not know, but I should not be surprised if it were found to be due to a single gene.

If there is absolutely random mating and the character does not tend to be lethal, the proportion of white-eyed birds in any population would eventually reach an equilibrium anywhere from less than one in five hundred to a very high percentage. This, in fact, seems to be the actual condition in different parts of the range of the species. Accepting this theory, other interesting observations might be made. The relatively small percentage of white-eyed Murres reported in southern British breeding colonies is good evidence that there is not much, if any, intermingling between the southern birds named by Witherby, in 1925, *Uria aalge albionis* and the northern form, *Uria aalge aalge*. In fact, this very discrepancy found in the different geographical areas does, I believe, give weight to the idea that they are segregated breeding populations. Why the white-eyed birds are rare in the southern British breeding populations is another question. From the literature on the subject I gather that there has been a great diminution in these southern populations within recent decades. If the human factor has been important in causing this loss and if there has been selective collecting of individuals and eggs of this recessive form, the effect would be noticeable. Thus, with the human element, the lower the proportion of the rare form, the more they would be desired by collectors, making the character in question more and more lethal to the species. Salomonsen's report of 63 per cent in a collection of 65 birds from the Bear Islands, when compared with other reports of live birds from the same region, indicates this kind of collecting. As far back as 1864, in some regions at least, the white-eyed birds were being collected apparently whenever possible (Cordeaux, 1864; Boulton, 1864). Since there was a standing demand for these specimens, sea-fowlers no doubt were on a constant lookout for them.

From the North American range we have insufficient data for detecting any segregated breeding populations on the basis of the proportions of white-eyed individuals present.

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