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NOTES ON SOME AMERICAN DUCKS.

BY ALLAN BROOKS

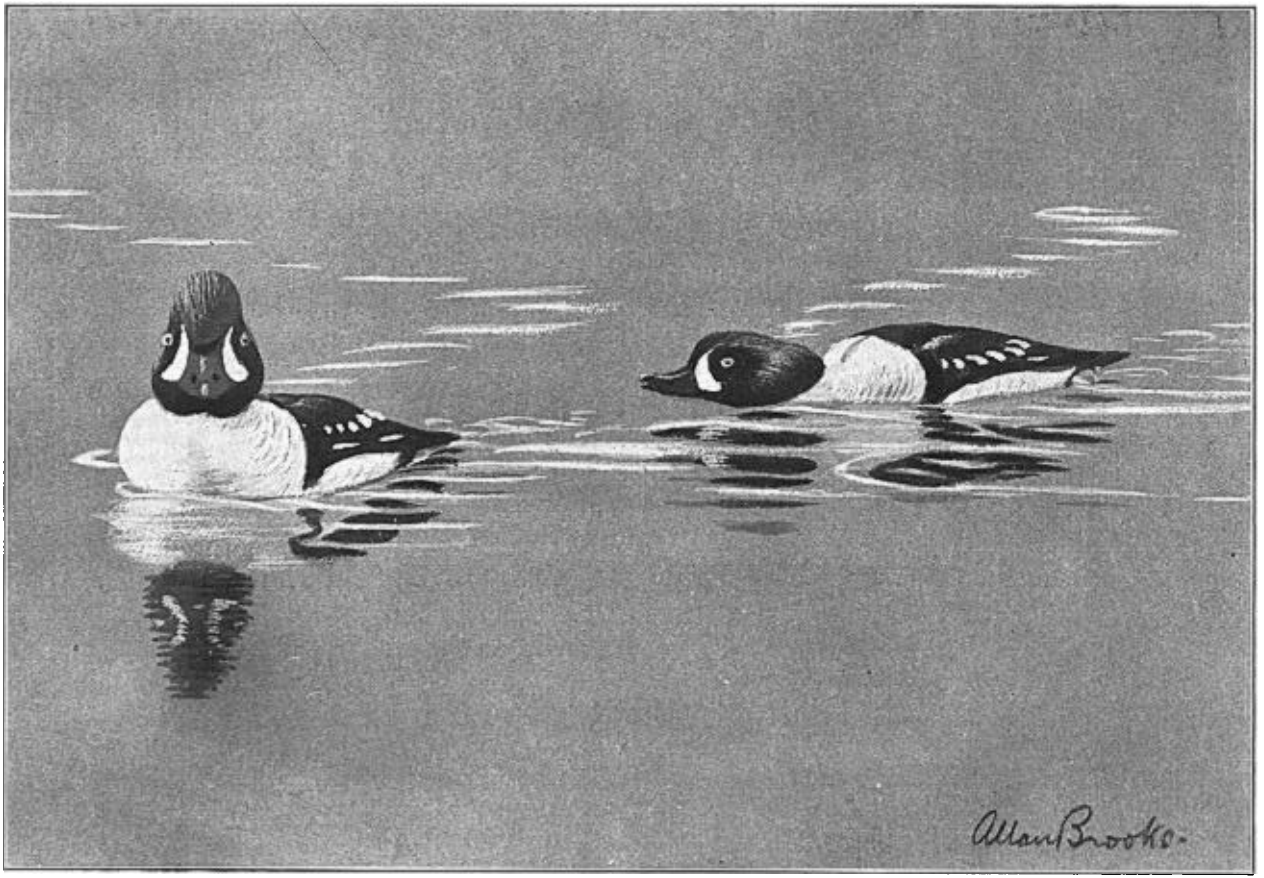
Plates XV–XVI

This contribution has been stimulated by the many valuable papers by American ornithologists on these hitherto rather neglected birds. Mr. Hollister's paper on the Ringneck in 'The Auk' for October 1919 is especially welcome, expressing as it does the first appreciation of the real affinities of this species.

The changes that he proposes for the next A. O. U. 'Check-List' regarding the position of this duck are quite in order, but a more important one is to put the Ruddy Sheldrake where it belongs, its present position in the 'Check-List' being quite impossible.

There is a great deal of work to be done yet even on the commonest of North American ducks especially with the plumages of the females. The variation in these is considerable. In the surface-feeding ducks it consists largely of a decrease in the spotting of the lower surface in many species. I always put this down to age but since I have found that a similar condition found in the larger Falcons, is really an individual variation without any change through successive moults, I am inclined to wait until observations are recorded of female ducks in captivity.

The variation in the females of the diving ducks is not as a rule so pronounced, but it occurs in many species.



MALES OF BARROW'S GOLDEN-EYE "CHASING"

Marila americana. REDHEAD.

There is a very frequent tendency to albinism in the female Red-head, not in the male. Adult females are almost always plentifully sprinkled with white feathers on the back of the head and neck; this is accompanied by a varying amount of white in the down. I have carefully plucked the outer feathers from a number of females, the down on the lower surface may or may not be white. The amount of white in the down seems to parallel the amount of white in the feathers of the head, very rarely is the down continuously white but is usually marbled with patches of dusky colored down. The fattest birds very often have the largest areas of white in the down on the lower surface, it may be that the down may not be properly pigmented because of the heavy layer of fat.

On the lake in front of my house at the present moment among the hundreds of Redheads is a female with an almost entirely white head, the body being quite normal.

The variation in the numerical strength of the sexes according to season is probably as pronounced in this species as in any duck. At present (November), the proportion of females to males is about 2 to 3, in midwinter, (January), one hardly sees a female in the large flocks of males, and not until the end of February are the proportions anything like equal. A similar sequence occurs in nearly every species of duck at this latitude, with the possible exception of the Mallard, in which the sexes are usually proportionate throughout the year.

Marila marila. SCAUP.

The A. O. U. 'Check-List' gives this species as breeding in southern British Columbia; I can find no reliable record of this, and consider it in the highest degree improbable, as I have never seen the species in summer even as far north as I have been in central British Columbia, (lat. 54°), except for a few crippled birds.

Marlia affinis. LESSER SCAUP.

This is a common breeder in central British Columbia (the region between Quesnelle Lake and Lac la Hâche), but a scarce one in the southern portion of the province.

Unlike the larger species the females are very variable, in many fully adult and breeding birds there is no white at the base of the bill, the whole head being light brown; in others the head is very dark brown with a conspicuous white patch on the face, as in the Greater Scaup. These dark birds very often have the back freckled with white, a character I have not noticed in the light brown headed birds, in which the whole body plumage, except the breast and belly, is uniform light brown.

Marila valisineria. CANVAS-BACK.

Breeding range exactly as in the Lesser Scaup. Southern breeding records are Lumby—one pair in 1902, and Grand Forks—three pairs in 1919.

Marila collaris. RING-NECKED DUCK.

I can completely endorse all that Mr. Hollister says about this duck. One other point of similarity between it and the Redhead is the color of the downy young, exactly the same in both birds and quite different from the dusky ducklings of the Scaups. When in England I frequently watched the Tufted Ducks very closely, to see points of affinity to our Ringneck. The full plumaged males certainly look very much alike, especially when one sees them diving in shallow water, the whole body being almost enveloped in the light colored flank feathers. They, like the male Ringnecks, are very conspicuous as they dart about along the bottom rising like corks after a short immersion.

But the females are not so much alike, and the young are utterly different, the downy young of the Tufted Duck being the most dusky colored ducklings I know of. And the females and young are a far better indication of affinities than the males. The female of the old world Pochard (*Marila ferina*) is extraordinarily like a female Canvas-back, a female Redhead in the London Zoo ponds alongside of the Pochards looked utterly unlike, both in form and color, but strangely like a couple of female Rosy-billed ducks (*Metopiana peposaca*) which often came alongside of her.

And yet a certain well-known ornithologist in England proposes to make our Redhead a subspecies of the Old World Pochard!

Clangula islandica. BARROW'S GOLDEN-EYE.

This is an attempt to find a reliable method for separating two perfectly distinct species. For Barrow's Golden-eye is a perfectly distinct species and has always been recognized as such, yet it would be more than difficult for an ordinary man to identify a series of specimens by the aid of any of the works of reference I have come across.

Even the best authorities themselves seem uncertain as to the reliability of their points for distinguishing the females and young of the two species.

This has probably led to the slighting references and inadequate descriptions by minor authors.

Barrow's Golden-eye is not a "perpetuated accident of variation" except to those who know nothing of the bird. The adult males are not only easily distinguishable in the hand by at least eight points of difference (including structural) but are readily identified in the field as far as one can separate one species of duck from another.

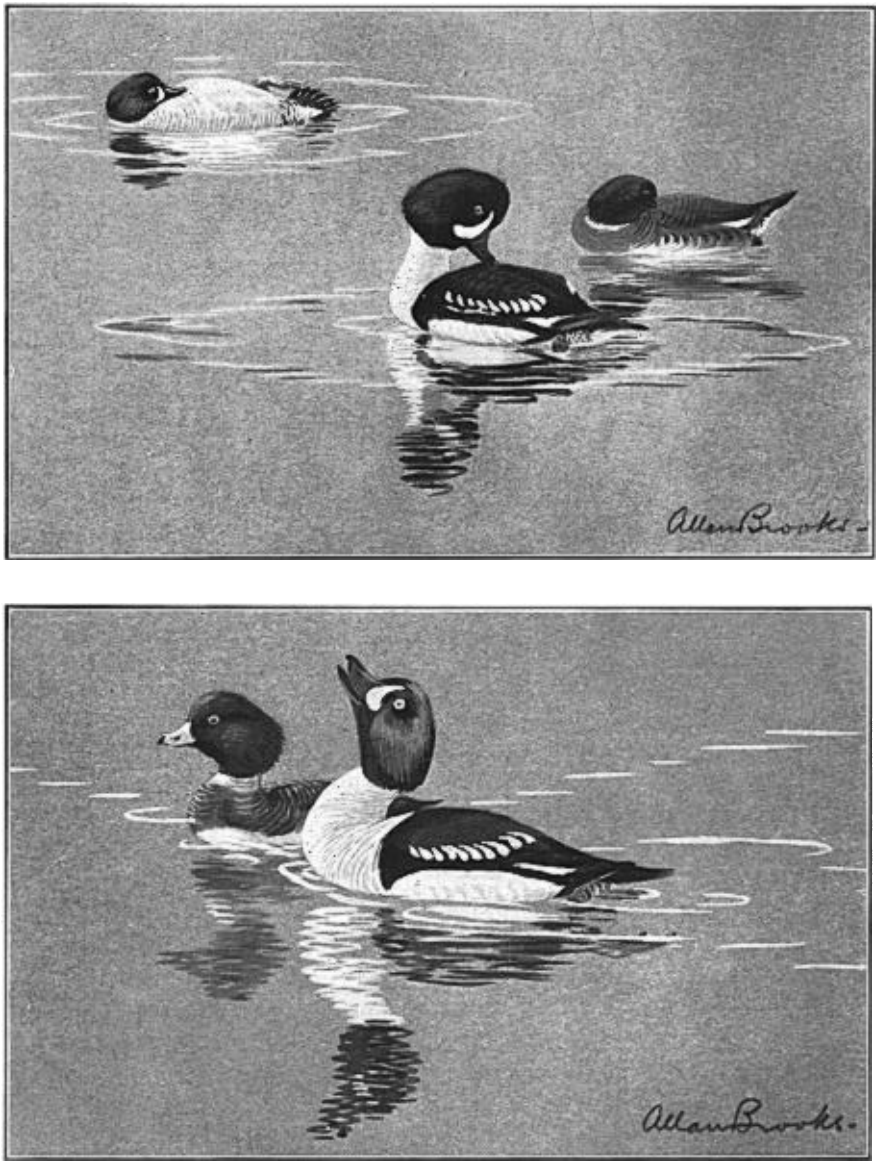
Millais in his 'British Diving Ducks' is the only author who recognizes this, probably because he is the only one familiar with the species in life.

The crescentic cheek mark, the purplish head, the black wing bar, and the spotted scapulars, are the marks usually given for field identification of the adult male; but the most striking difference is the very black appearance.

Adult males of the Common and American Golden-eyes are very *white* birds, the body looks almost altogether white, just as a male Bufflehead's does, especially when sitting. The adult male Barrow's on the other hand looks to have a body more black than white. The most conspicuous feature of a duck at rest is the flank. Whatever color the flank feathers are, they will dominate the mass of the bird, as they overlap the whole wing and sometimes even a portion of the back.

Thus a fully plumaged Ringneck drake looks to be almost as white as a Scaup, a Black Brant looks more white than black, and so on.

The flank feathers in Barrow's Golden-eye (adult male) are heavily margined with black, fully two-thirds of an inch wide,



1. BARROW'S GOLDEN-EYE. MALES PRUNING. FEMALE ASLEEP.
BARROW'S GOLDEN-EYE COURTING.
MALE IN SWALLOWING ACTION. FEMALE BOBBING UP AND DOWN.

and the black comes almost, or quite, to the water line in front of the wing.

But while a child could distinguish the adult males of the two species, it is a very different matter when it comes to the females and young.

The case of the Cinnamon and Blue-winged Teal is similar, and there are many others where two utterly dissimilar males have females that are almost identical. In the Golden-eyes this has been complicated by the oft-quoted recognition marks that have no value, as they are common to both species.

Perhaps it may be as well to go over the accepted and proffered distinctions for separating *islandica* from *americana*.

1. The wing bar. This is the most often quoted distinction. In the adult male of Barrow's there is certainly a constant and conspicuous black bar separating the white patch on the wing, this is caused by the *bases* of the greater coverts being black. But the bar formed by the black *tipping* of these feathers in the females and young is, as pointed out by Mr. Brewster (Auk, Vol. XXVI, p. 159), an utterly valueless distinction, as both species may or may not have it in different individuals.

Five adult females of Barrow's in my collection have these feathers as follows:

No. 1. Solid black, no bar.

No. 2. Base black, terminal half white with small black tips, forming a slight bar.

No. 3. Tips black, well-defined bar.

No. 4. Trace of spots on tips of two feathers, no bar.

No. 5. Slight bar.

All of these are absolutely identified, being taken in the spring when paired.

The most pronounced bar in a female in my collection belongs to an otherwise typical *americana*, which has all the coverts tipped black, while another has a trace of a bar.

2. Deeper coloring of head and neck in female Barrow's. This is a fairly reliable distinction but it is a *comparative* one. Ridgway in his manual says of *islandica*, "brown of head descending to middle of neck all round." I can see no difference in amount of brown in fresh specimens of the two species; the above distinction probably depends on the make-up of the skin.

3. Wider gray pectoral band. Probably a sound distinction but one which is dependent, in the skin, on a uniform method of make-up.

4. Shape and proportions of bill. The more tapering bill of *islandica* is a thoroughly good distinction, but as given by all authorities it is a comparative one, just as is "bill more goose-like."

How can a man who has only one Golden-eye tell whether the bill is tapering when no measurements are given, or that it is goose-like if he has no example of the other species to compare with it? Ridgway's 'Manual' however has a definite formula as the best distinction between the two species.

"A^1. Height of upper mandible at base, measured from point of frontal angle to nearest point on cutting edge, less than distance from anterior edge of loral feathering to anterior end of nostril, and usually little if any greater than distance from latter point to tip of upper mandible

G. clangula.

151. *G. clangula americana.*"

"A^2. Height of upper mandible at base, measured from extremity of frontal angle to nearest point on cutting edge, equal to distance from anterior point of loral feathering to anterior end of nostril, and much greater than from latter point to tip of upper mandible

152. *G. islandica.*"

I have carefully tested this with the following results:

If the first measurement is taken by placing one point of the dividers on the frontal angle, and the other on the cutting edge, *i. e.*, the chord of the distance around the bill, the results are wrong in one-fourth of my specimens of *islandica*, including one adult male, and wrong in two-thirds of my specimens of *americana* including two adult males.

If this measurement is taken by holding one point of the dividers level with the frontal angle in line immediately above the nearest point of the cutting edge, *i. e.*, the actual height of the former above the latter, the results are hopelessly out in nearly all my *islandica*, but correct for all but one of my *americana*.

If the first portion of the proposition is taken, eliminating the distance from nostril to end of bill, measurements taken by first method, the results are correct in all my *americana*, but wrong in four out of eleven *islandica*. So this distinction, which I had great hopes of, proved a "no thoroughfare."

5. Nail of bill. Ridgway gives width in *americana* female "not more than .20." I have a female with a nail width of .22. In *islandica* female "not less than .23," this holds good even when a very young *islandica* is included, it has a nail .26 wide. Brewster says he is unable to verify this distinction with his series, so it must be reckoned uncertain.

Nail larger and more hooked at tip ('Game birds of California'), also Munro in 'The Condor,' No. 1, Vol. XV. "Nail is wider at the front, projects further over tip of bill, and is slightly raised above the bill forming a noticeable lump."

All of these distinctions hold good but then again, as given, they are mostly comparative.

6. Color of bill. The yellow color of the bill in *islandica* is an oft-quoted distinction and one to which Mr. Brewster attached great faith.

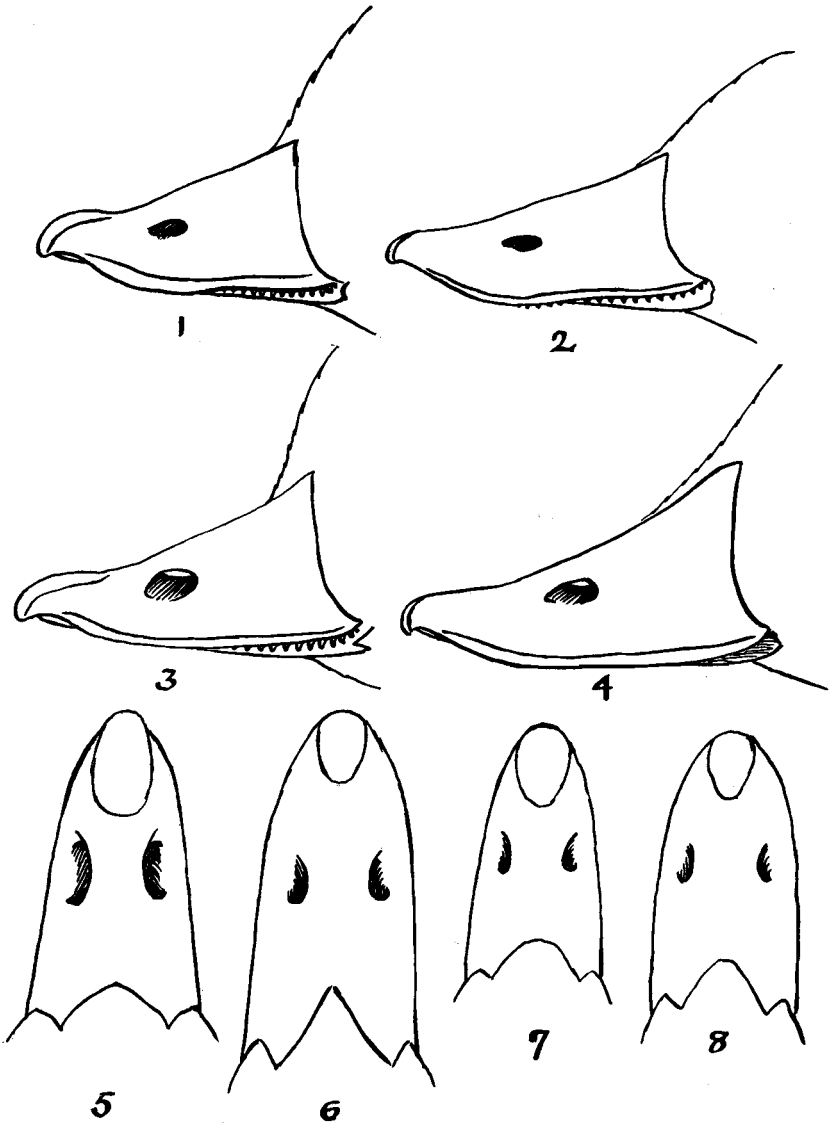
The following facts I can vouch for: Adult females of *americana* usually have a yellow or dull orange bar on the terminal third of the upper mandible, sometimes more than one-third of the bill is yellow and in one instance (and here I speak from memory only) the entire bill orange yellow.

The young of this species have always (?) an olive bill—no yellow.

The young females of *islandica* have an olive, brownish, or blackish bill, no yellow. In the adult females it is wholly orange or cheese-colored, or else the same with the base more or less flecked with dusky. *But this is a seasonal feature only.* During the past summer (1919) I kept a number of breeding females under observation. When pairing with the males in the latter part of April and early in May, *all* had orange bills, even some of the unmated immatures of the previous year had the bill more or less orange. In July, when these same females were each leading a brood on their respective ponds, all had dusky or blackish bills, showing no yellow at all.

So the yellow bill, which can only apply to adult females at best, cannot be relied on at all seasons.

7. Skull. The difference in the shape of the frontal bones has been noticed by several authorities, it is pronounced enough in adult males, but a rather subtle distinction when applied to young birds (see figures p. 362).



1 and 7. Barrow's Golden-eye ♀ ad. March 21, 1914.
2 and 8. American Golden-eye ♀ ad. April 7, 1914.
3 and 5. Barrow's Golden-eye ♂ ad. April 15, 1911.
4 and 6. American Golden-eye ♂ ad. March 17, 1891.

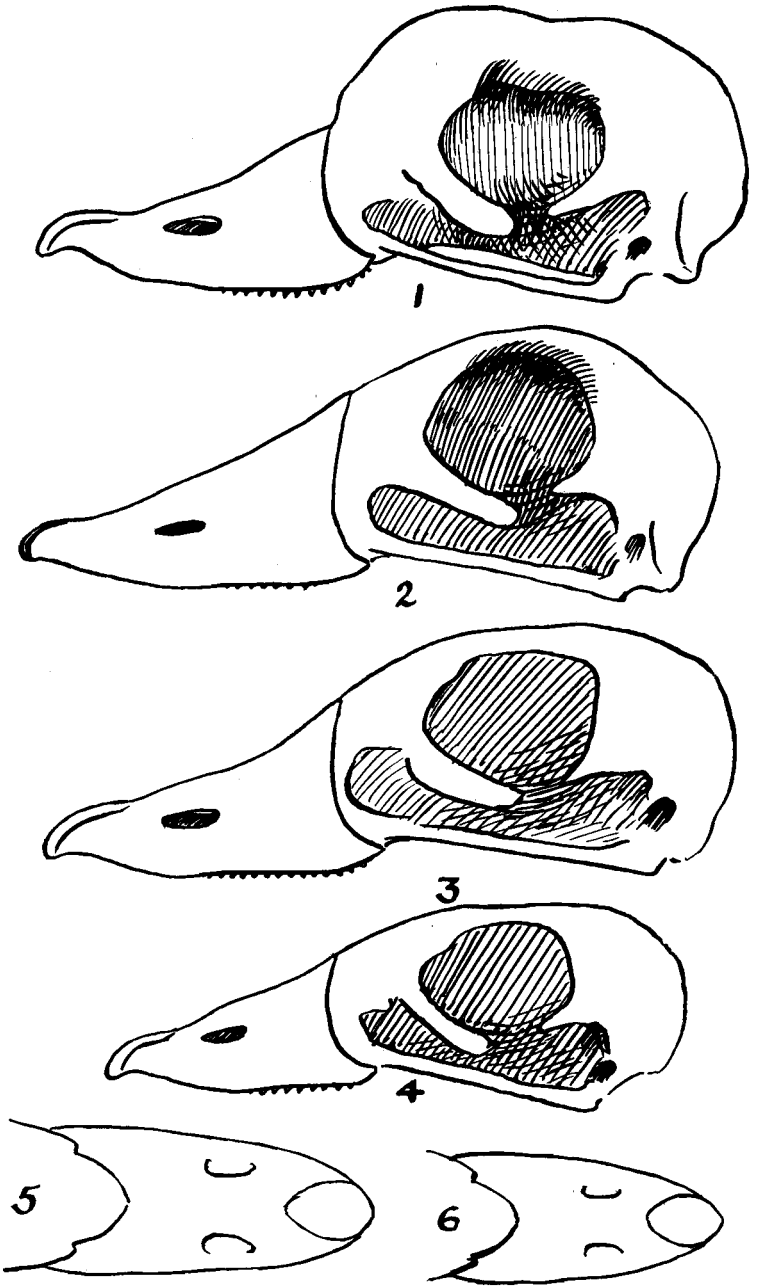
Now the sum of all of this discussion seems to be that it would be easy to wrongly identify a bird of either species from the works of reference available in America, nor do those of European authors, up to and including Millais' very elaborate work, give a really reliable method of distinguishing the two species at all stages. As their main distinction, that of the greater size of *islandica*, only applies when it is compared with the smaller old world subspecies, *C. clangula clangula.* The following attempt to differentiate them may also prove abortive, but it works out well with my series.

This series is small, as events of recent years have interfered with my plan of making a really good series of both species. Still I have eleven thoroughly identified specimens of the rarer bird, and have had exceptional opportunities of identifying these, by taking the paired female of an undoubted male *islandica*, or the young of the same species after watching them through the summer.

Also I have had a very much larger number through my hands, and since my first introduction to Barrow's Golden-eye some twenty-three years ago, I have lived in a region where it is the commonest breeding duck, for the greater part of my time.

This fact must be my excuse for attempting what is apparently a rather difficult undertaking. To get correct measurements, and ones that properly illustrate the differences, has not been easy. First, the nail has ill-defined boundaries in many cases. I have found it advisable to wet the bill to more clearly define these. Second, it has been difficult to get a measurement that shows the very pronounced taper of the bill in *islandica;* if the width is taken near the tip, where it is most prominent, there must be a definite point. Through the base of the nail would seem to be the best, but the longer nail of *islandica* brings this measurement further back in that species, and so makes them more nearly alike than the actual shape of the bill would indicate. Half way between nostrils and base of nail suffers from the same cause, so I have had to take the measurement across the anterior angle of the nostrils although the taper is not so pronounced there.

As Mr. Brewster has done (loc. cit. p. 159), I shall place the characters in what I consider the order of their importance.



1. Barrow's Golden-eye ♂ ad. April 15, 1911.
2. American Golden-eye ♂ ad. March 17, 1891.
3 and 5. Barrow's Golden-eye ♂ ad. October 15, 1913.
4 and 6. Barrow's Golden-eye ♀ ad. October 15, 1913.

Those relating only to adult males are disregarded as these can be separated by any one without difficulty.

1. *Nail. Americana*—Nail flattened or depressed, not conspicuously raised above the contour of the bill when viewed from the side, and not arched in its transverse section towards base.

Length of nail, ♂, less than .46 in., longest .44, shortest .38, average .406; ♀, less than .40, average .37.

Islandica—Nail arched in both longitudinal and transverse sections, showing as a conspicuous hump above the contour of the bill.

Length of nail, ♂, over .46, longest .53, shortest .48, average .508; ♀, over .40, longest .46, shortest .41, average .43.

2. *Shape of bill. Americana*—Bill not conspicuously tapered when viewed from above.

Width at a point through anterior angle of nostril, ♂, over .69, widest .82, narrowest .70, average .74; ♀, over .60, average .69.

Islandica—Bill conspicuously tapered, width taken as above, ♂, less than .69, widest .68, narrowest .63, average .65; ♀, less than .60, widest .59, narrowest .55, average .57.

3. *Color of head in* ♀. *Americana*—"Hair brown or grayish amber."

Islandica—"Deep sepia or purplish snuff brown." (Ridgway.)

4. *Shape of Skull. Americana*—Frontals continuing the slope of culmen, without trace of a bulge.

Islandica—Frontals conspicuously bulging in adult males, hardly less so in immature males of second year, bulge distinctly noticeable to the touch in adult females, and faintly so in juvenals.

Something might be made out of the amount of black at base of greater coverts. This is decidedly more in *islandica*, usually showing beyond the overlap of the lesser coverts, and sometimes covering the entire feather. In young males commencing to show the white cheek patch a crescentic formation is sometimes apparent in *americana*, this is due to the fact that the white feathers commence to come in along the edge of the bill, following the curve of its base, but it may be noted that this crescent is confined to the lower portion of the bill, in *islandica* it continues up to the mental angle, even in its first stages.

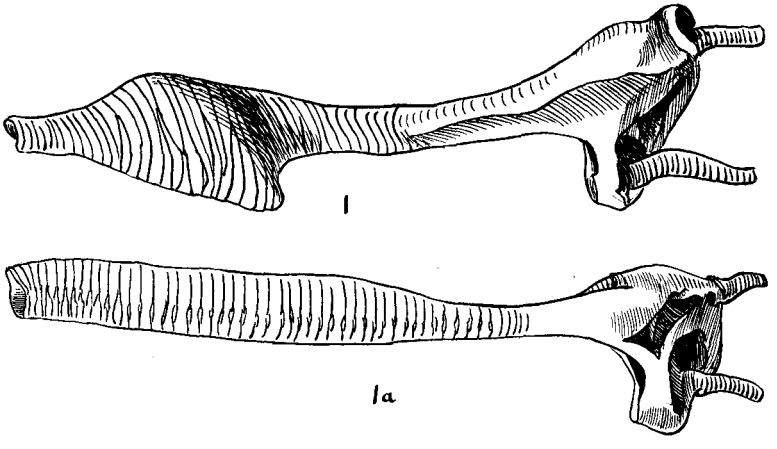
The diagrams of bills appended are drawn from dried specimens, as this will be the condition of most of the birds to be compared with them.

The tomia is apt to roll up and enclose the under mandible in drying, sometimes more on one side than the other, giving the bill a lop-sided appearance.

The top views of the bills of the juvenal male and female *islandica* show a greater length as these are made from skulls, where there is no feathering to cut off the extreme base when viewed in this manner.

The differences in the trachea have been commented on before, but it is as well to include them here, the figures illustrate these. The sketches of courting antics are from a notebook, and were made in the field. (Plates XV and XVI.)

The most common form of display in the drake is the 'swallowing' or 'gulping' action, this may or may not be followed by a kick which throws the water up behind. 'Chasing,' with the head close to or level with the water, and the body sunk, always occurs when one male invades another's territory. The pursuer often dives and comes up under the intruder who then makes off at great speed.



1. Trachea of American Golden-eye.
1a. Barrow's Golden-eye.

Continually between these antics the males preen themselves, frequently turning over on the back.

The females pay little attention to their lords, occasionally they approach bobbing or pumping their heads up and down, and turning the bill from side to side; more rarely they will join in the chase of an intruding male.

Quite often a female will turn her head around, tuck her bill away in the back feathers and calmly go to sleep, oblivious of the display of the drake who seemingly does not care whether his spouse looks at him or not.

Once in November I watched a lone drake going through the whole performance by himself—water-kick and all. When asleep the tail is held up at a good angle, though not such a conspicuous cant as is affected by Ruddy Ducks and Scoters when resting.

Barrow's Golden-eye is a common breeder throughout the arid interior of British Columbia, from the southern boundary north at least to lat. 54 , and from 1000 ft. altitude up to at least 6000 ft., wherever the mountain lakes are sufficiently clear of ice to allow them to rear a brood. I have only twice seen the common Golden-eye breeding in this region.

All the drakes, including those of the preceding year (which do not acquire the full plumage until their second autumn), leave for the coast before the middle of June, and before the young are hatched.

The bulk of the females and young follow them about the middle of September as in the case of the Harlequin Duck.

I have so far been unable to actually verify that they do so to the salt water, but hope to during the coming summer.

A few birds may be seen throughout the fall and winter, including adult males. I am inclined to believe these are not the birds that have bred here, but rather migrants from the northeastern districts.

I have found Barrow's Golden-eye fairly common at the coast in the winter, and much tamer than the common Golden-eye.

Oidemia americana. AMERICAN SCOTER.

In British Columbia this Scoter is an exclusively maritime duck, at least I have not come across a single reliable inland record. Not only is it a maritime bird, but it is seldom found in the small bays and inlets where the other species swarm, but frequents the exposed shores and outer reefs together with the Harlequin. It has many points in common with that duck, rising easily from the water and doing much flying about in small lots of four or five—mostly males—seemingly for the pleasure of flying, usually returning to the point they started from.

In flight the silvery under-surface of the primaries, in both sexes, is very conspicuous. In fine calm weather they call a great deal and their plaintive 'cour-loo' is the most musical of duck-cries, very different from the croaking notes of most diving ducks. While very strongly opposed to multiplying genera, I must agree with Dr. Dwight that this Scoter is hardly con-generic with the other two American species, this difference is most pronounced in its actions.

Oidemia deglandi. WHITE-WINGED SCOTER.

This duck throws a good deal of light on the movements of many of the sea-ducks, as its migrations are largely made by daylight. The northward movement is *en masse* in May and very early June, and a large proportion of the flocks migrate diagonally across country in a northeasterly direction. I think the bulk of the Mackenzie River Valley birds migrate across British Columbia. The sexes in the flocks at this time seem to be proportionate.

A few birds of all ages remain on the coast all through the summer—now breeding adults and young birds of the preceding year. Late in July and early in August small flocks of adult males return by the same route, and passing down the inland lakes they arrive on the coast and form very large flocks. As Dr. Dwight has recorded there is no eclipse in the Scoters, these birds are all in worn plumage.

Early in October comes the great migration of the females and young, these are usually in small lots of eight to a dozen—evidently the female with her brood.

They frequently remain on the inland lakes for a few days, forming larger flocks, and then pass on to the coast, a few adult males are with them. None breed in southern British Columbia.

Oidemia perspicillata. SURF SCOTER.

While this is not an exclusively maritime duck, like the American Scoter is with us, its migrations, while generally similar to those of the White-winged Scoter, are much more coastwise. A few, both adults and young, on both the Spring and Fall migrations, migrate across country, but for the real movement one should be about a mile off shore on the salt water.

Along the British Columbia coast for about two weeks in October there is a constant succession of flocks of females and young of this and the preceding species, the numbers that pass must be incalculable.

There is no reliable record of its breeding in the Province, although I have seen them vigorously courting in central British Columbia, well along in June; three or four males whirling about a female on the water like whirling beetles, and uttering a curious low, liquid note, like water dropping in a cavern. Large numbers of both this and the White-winged Scoter die from parasitic diseases (intestinal), but nothing to the thousands that are killed through contact with floating patches of crude oil at sea.

Okanagan Landing, B. C.

RELATIVE ABUNDANCE OF WILD DUCKS AT DELAVAN, WISCONSIN.

BY N. HOLLISTER.

RECENTLY, in looking over some old ducking records kept by myself and companions at Delavan, Wisconsin, it occurred to me that certain parts of these records are well worthy of permanent preservation. They furnish fairly accurate data on the relative abundance of many species of wild ducks at that time and may serve for important and instructive comparisons with similar figures which may be kept at some future period. It is evident that there has been a considerable change in the relative abundance of various species during the past twenty-five years, and it would be very interesting indeed if we had comparable records for the same region for still earlier times.

From the fall of 1892 until the fall of 1899, inclusive, we occupied a cottage at Delavan Lake each autumn and spring for a week or two of duck shooting. In a book provided for the purpose, complete records were kept of every game bird brought into this cottage. All of the shooting was over decoys in open