

As a matter of fact, however, Pine lake, south-east of Red Deer, is full of perch, averaging in weight about three to the pound. The fish also occurs in the reed-beds at Sylvan lake, the average weight being from half to three-quarters of a pound. The perch is a very fair table fish, and steps should be taken to prevent the wholesale slaughter that sometimes occur at Pine lake.

The foregoing notes include a number of species of our most interesting and valuable fresh water fish, and in concluding this paper I ask the question: Do we as a people sufficiently appreciate our heritage in fishes, and realize with the rivers and lakes of Canada at our disposal, the opportunities they

offer (a) as food, (b) as a poor man's sport. Personally I do not think so upon the *broad lines* that I have in mind, and I feel, with a view to the generations to follow, that we should bestir ourselves. It seems to me the necessary procedure to be followed groups itself under three heads:

1. Continually restocking rivers and lakes with the *best fishes native* to such rivers and lakes—thus insuring an increase and not a diminution in the supply.

2. Introducing into river and lakes the *best fishes adaptable* (but not native) to such rivers and lakes.

3. Prohibiting by legislation the pollution of rivers and lakes by untreated sewage.

NESTING OF THE CASPIAN TERN IN THE GEORGIAN BAY.

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The Caspian is the largest of the three Terns which the observer has a reasonable right to expect to see on our waters. Until within a few years it was supposed that the only nesting ground of these birds in the Great Lakes was on some islands in Lake Michigan, and I was, therefore, quite surprised in June, 1909, when I found an adult specimen in the collection of Mr. Chris. Firth, at Durham. It was still more surprising to be told that this bird came from near Parry Sound where it nested on an island in that portion of the Georgian Bay.

This information had come from Adam Brown who is the lighthouse keeper at Red Rock light, five miles from the Limestone Islands on which the Caspian Tern has eventually been found to nest.

The summer following my discovery of this specimen at Durham, I had a letter from Prof. Guy Bailey, Geneseo, N.Y., inquiring where he could go for some interesting Canadian bird work, and I promptly detailed him for the hunt after the Caspian Tern which he carried out with entire success. He went to Parry Sound, made inquiry, and eventually landed on Limestone Islands, where he took photographs of the eggs and young.

I was not able to visit the locality until 1918, when on June 4, Rev. C. J. Young, Brighton, Ont., Mr. Edwin Beaupre, of Kingston, Ont., and I reached Parry Sound in the afternoon and went out with Mr. Dan Bottrill to Snug Island lighthouse, some distance past the entrance to Parry Sound bay. The next day being calm we traversed the intervening ten miles to the Limestone Islands. Caspian Terns were in evidence now and again on this journey and indeed, are tolerably familiar birds around Parry Sound harbor. When we came near

the island we began to see them in considerable numbers and mingled with them were Herring and Ring-billed Gulls. The island on which the Caspians nest is only slightly elevated above the lake level with the exception of two places where mounds rise to the height of about ten feet above the lake. The chief mound, on and around which most of the nests are found, is perhaps thirty yards across at the base. The sides have a moderate slope and are covered with grasses, but the top of the mound is nearly bare of vegetation and the rock is breaking into small scaly fragments. The other mound is similar, but smaller, and the rest of the island, the northern one, is only slightly elevated above the level of the lake and more or less thickly covered with grasses.

Bare rock showed in a great many places in large irregularly formed rectangles and in the cracks between these rock faces grew the grasses which outlined them.

The two islands are connected at low water, but we had to wade from one to the other and it took us up to our knees and the footing was none too good at that.

On the southern island we imagined the nests of Kingbirds, Yellow warblers, Song sparrows, Tree swallow, Spotted Sandpiper and probably Black Duck or American Merganser as these birds were represented there, but there were no Terns' nests on it nor any gull's except those of the Herring, of which there were thirty or forty nests placed mainly between the timber logs which had drifted up from the low shores of the island and had been left high and dry by heavy winds.

Our interest centered, of course, on the Caspian Tern, and as usual in cases of communal nestings of

water birds, we found the different species keeping pretty well to themselves. The Caspian Tern selected for itself the highest portions of the island, namely, the tops of the two knolls. Here they rested when they came in from flight, and the fact that they always seemed to prefer to rest on the highest point probably accounts for the small number of nests on that part of the knoll. There were only five nests on top of the large knoll. On the sides were more nests of the Caspian Tern, but as the lower level was approached the nests of the Ring-billed Gull began to be found, and when the level at the bottom of the slope was reached, no more Caspians were to be seen. In addition to the five nests of the Caspian found on top of the large knoll, there were ninety-three nests on the sides of it. On the smaller knoll we found fifty-seven nests, making one hundred and fifty-five with eggs in all. It is to be presumed, therefore, that this colony consists of about 350 or 400 breeding birds, as many of the sets were incomplete and some of them had probably not yet begun to lay.

The habit of Terns in general is to make a very sketchy nest, often nothing more than a mere hollow, and the nests of the Caspian on top of the knoll followed this general rule, but as one observed the nests on the sides of the knoll, he found that as he went down the side, the nests became more and more substantial, until the bottom nests were almost as elaborate as those of the Ring-billed Gulls nesting alongside, and our surmise was that the higher levels were the preferred nesting ground for all species, and that the ring-bills started to lay their eggs on these higher levels but were ousted from them by the Caspians who adopted the more substantial nests of the gulls. The Caspians which were later in beginning to lay would then steal the nests of the next highest Ring-bills. This theory would account for the increasing thickness of the walls and lining of the Caspian nests as the lower levels were approached and the fact that the Caspians and the Ring-bills were nesting within three or four feet of each other in some places, also supports the theory. At one point at the south-east side of the larger knoll there was a clump of small bushes, in and around which were five nests. Three of these were Caspians and two were Ring-bills, one of these being in the centre of the patch.

It was very interesting to have these birds so close together and to compare their voices. The notes of the Caspian are, of course, unique and no one who has ever heard them would think of confounding them with any other kind of water bird to be found in Ontario. One does not need an ear for music to accomplish the distinction. Any one who can tell the bray of a donkey from the rooster's

crow, should be able to distinguish the Caspian Tern by its notes, but the Herring Gull and the Ring-bill have long been a puzzle to me and I did not get any serious help from this visit, except that the Ring-bill did not give us any example of the cackle so often used by the Herring Gull, but the musical tones of the gulls we found indistinguishable, both of them using many different pitches and phrasings.

Considering that there was so little opportunity for concealment, the Ring-billed Gulls concealed their nests very well, placing them among the grasses which grew in the cracks between the rocks.

When the cracks were of sufficient dimensions, say five or ten inches, the concealment thereby afforded was substantial, and the Ring-billed Gulls placed their nests in these strips of grassy growth at from four or five feet to fifteen feet apart.

We found the Herring Gulls to be less companionable than the others as their nests were much farther apart, seldom being as close as fifteen feet from one another. They seemed also to have laid their eggs a little earlier as we found three or four of their nests with newly hatched young, while none of the Ring-bills or Caspian Terns had hatched a single egg. Three was the maximum set for each and two were apparently being incubated in a good many cases.

Against the 155 nests of the Caspian Tern we found only 64 nests of the Herring Gull, and 77 nests of the Ring-billed Gull, and Mr. Bottril and Mr. Brown think that the Caspians in the colony are increasing slowly.

Sometimes nesting grounds of this character are apt to be much molested by human beings, but in the present instance such is not the case.

During the nesting season, the Georgian Bay indulges in a good deal of windy weather. The approach to these islands is so bad that landing can only be managed on a day so calm that it would be exceptional. To make matters still better for the Gulls and Terns they nest in a season in which the fishermen are very busy, and there is no other class of inhabitants nearby.

One of our friends had heard that there were a few Caspian Terns nesting on an island some ten or twenty miles south where the Common Tern has a colony, but we were not able to investigate this rumor.

The migration route of this species was for a long time an unsolved puzzle. They appeared in small numbers at various points in the lower lakes and that was about all we knew of them, but from the observations of Mr. E. M. S. Dale of the McIlwraith Ornithological Club, and of our president, Mr. J. F. Calvert, it seems that after the breeding season has finished, these birds make a very leisurely

journey southward, following roughly the route of the Trent Valley canal, and from there they doubtless make longer flights to the south.

That their journeys are not confined to the immediate vicinity of water was proved by our presi-

dent one day when he was gardening with his ears open, and heard from one of his friends of the Kawartha district, a salute from the upper air, making the only record we have of the occurrence of this Tern in Middlesex county.

AN IMPORTANT DISTINCTION BETWEEN OUR TWO GOLDENEYES.

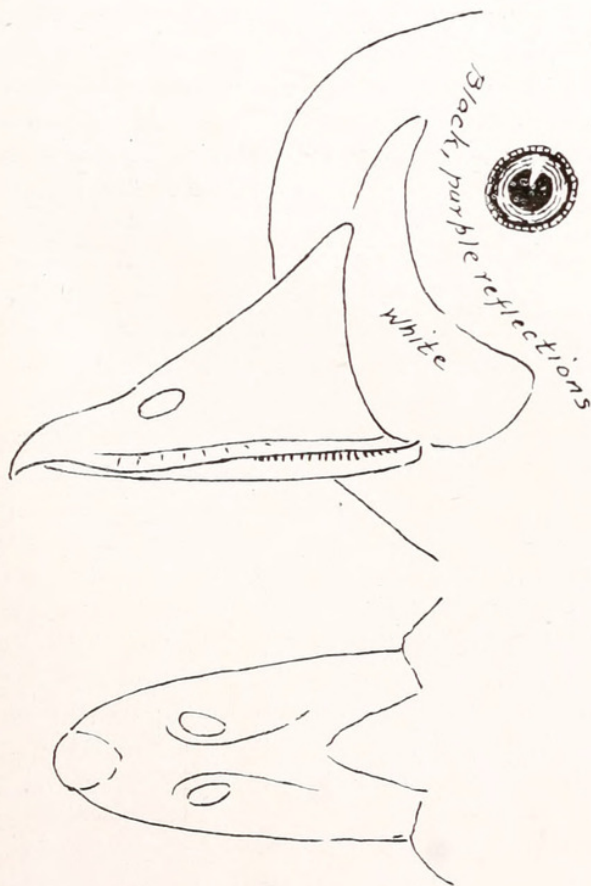
(*Clangula clangula americana* and *Clangula islandica*.)

By P. A. TAVERNER.

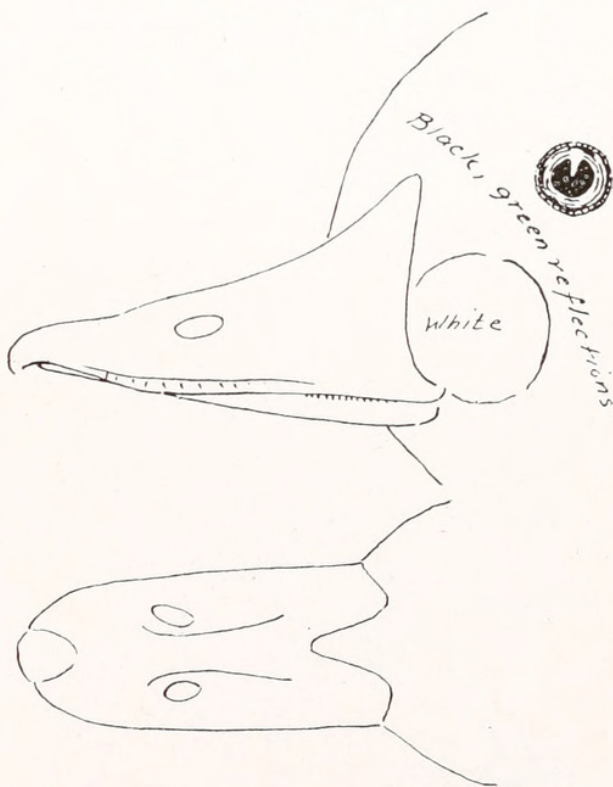
Except in adult male plumage, the resemblance between the American Goldeneye and Barrow's Goldeneye is so close as to cause considerable confusion in identification. Adult males, the American with its round facial spot against the green-black head and Barrow's with a crescentic spot of purple black are distinctive and need never be confused.

shorter, narrower and more stumpy bill than the American Goldeneye. The difference, however, is one that it is difficult to carry in mind and can only be certainly perceived when specimens are directly compared.

The male of the year is almost as difficult as the female to diagnose until traces of the adult head coloration begin to show, when the problem is immediately simplified. One distinction between these plumages has been pointed out by Major



BARROW'S GOLDENEYE.



AMERICAN GOLDENEYE.

The females are so nearly alike as to be separable with difficulty. Various plumage analysis of the two species have been worked out but the one really satisfactory distinction seems to be in the size and shape of the bill which shows the only constant character for all plumages. Even in this feature the occurrence of poorly developed juveniles is a disturbing factor. Barrow's Goldeneye has a decidedly

Allan Brooks and it seems reliable. A firm stroking with the finger from the base of the culmen over the crown reveals in Barrow's Goldeneye that the skull rises at the base of the bill more abruptly than in the American Goldeneye. The dissection of a number of specimens of both species, lately, however, has revealed another distinction that I cannot find hitherto recorded. The wind-



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