

Grand Prize, the Linnaean Society of New York its medal. He was elected a member of the National Academy of Sciences in 1876, an Honorary Member of the New York Zoological Society in 1887, an Honorary Fellow of the Zoological Society of London in 1901, and an Honorary Member of the British Ornithologists' Union in 1907, to mention only a few of the institutions on whose rolls his name appeared. And so far was he from realizing his own worth, that always, he writes, such recognition came to him as a "surprise."

And so in the fulness of his years and powers, honored by his colleagues, beloved by his associates, Dr. Allen's life came to its end. For more than three score years and ten he had dedicated himself to the study of nature and he has left to the world the fruits of his labors, a marvellous record of achievement, and an inspiring example of pure, unselfish devotion to the cause of science.

AN ADVENTURE WITH A PAIR OF HARLEQUIN DUCKS IN THE YOSEMITE VALLEY.

BY CHARLES W. MICHAEL AND ENID MICHAEL.

Plates II-III.

IN the Yosemite Valley, during the early spring of 1921, we had the pleasure of intimate and friendly association with the rare and little known Harlequin Duck. Although these birds have long been suspected of nesting in the mountains of California, eggs have never been taken within the confines of the State. Therefore, it was with eagerness that we searched for their nest. The search proved unsuccessful. However, we did get a great deal of pleasure in studying the habits of the birds.

The Harlequins were first noted April 6. From this date until May 10 they were daily visitors at our camp on the edge of the Merced River, where a floating lunch counter was maintained for their especial benefit. The following paragraphs, taken from notes written at the time of observation, may bring out some new points regarding the habits of these birds.



HARLEQUIN DUCKS ON THE MERCED RIVER, YOSEMITE VALLEY, CALIFORNIA

April 7, 1921.—We were about to cross Sentinel Bridge at 1 P. M., when, just above the bridge, we saw a pair of Harlequin Ducks. They were swimming close together and bobbing their heads most energetically. Suddenly the male Harlequin gripped the back of the female's head with his bill and pushed her completely under the water and hopped onto her back. Coition then took place. In fifteen seconds the female was free and flew under the bridge, closely followed by the male. She landed not fifty feet from where she left the water and immediately commenced to dive. The male swam about endeavoring to approach, but on being spurned he too began to dive.

After about three quarters of an hour of feeding the birds swam under the bridge and up the river for about fifty yards. Here they stopped to bathe. With a rapid movement of body and wings they beat the water through their feathers. At times one wing was used to throw the water over the body, at other times both wings were used.

The bath was apparently ended and the male eagerly approached the female, uttering a high, rapidly repeated call. At his close approach the female either dove or wildly beat the water with her wings. This maneuver was repeated several times. After about thirty minutes spent at the bath the birds climbed upon a boulder at the river's edge and prepared to rest. However, their rest was interrupted. Somewhere in the valley a blast was set off and at the sound, as if impelled by one motion, both birds dropped head first into the river, soon to reappear and swim up stream.

A few minutes later they appeared in front of our camp, a hundred yards up stream. Bread was thrown on the water and they ate with great enjoyment, sucking at the large pieces, after the manner of a feeding swan, and swallowing the small pieces.

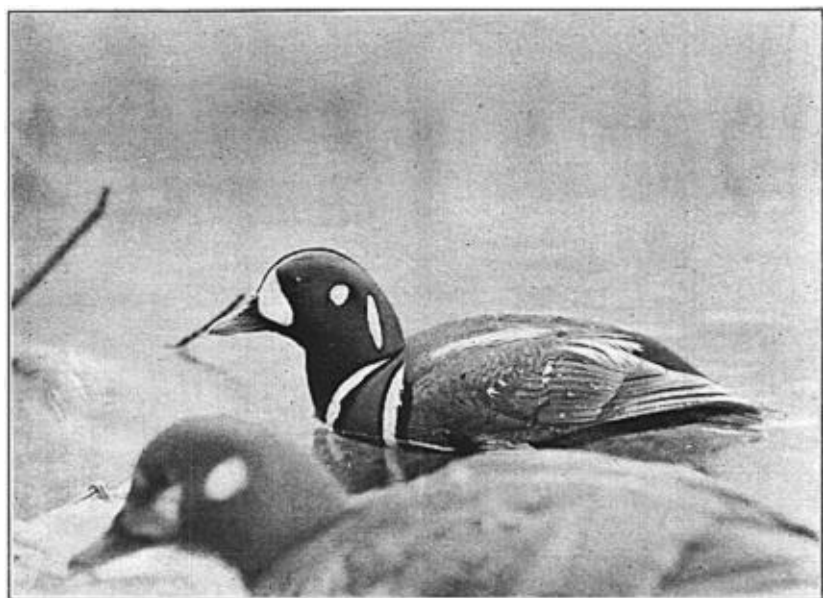
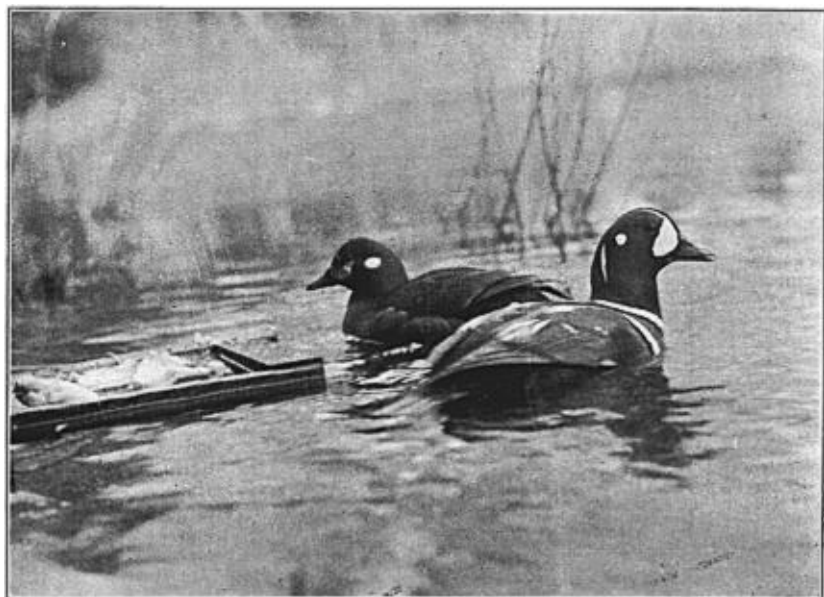
April 11, 1921.—The Harlequin Ducks came again today. When first seen they were swimming down the river a short distance above camp. As usual the female was in the lead, closely followed by the male. They came at once to the floating lunch counter at the edge of the sandy beach. While the female ate the water-soaked bread the male rested on the water a foot away, slowly paddling his feet and quietly waiting his turn without the least sign of impatience.

Before the female had eaten her fill I walked slowly to the shore and set up the Kodak, on a stand which had been previously arranged. As I approached the birds moved up stream about fifteen feet. In a moment the Kodak was adjusted and I retired out of sight. In less than a minute both birds were back, and the female was eating. When they were in about the right focus the string was pulled and the shutter of the Kodak went off with a snap. At the click of the trigger both birds looked up, but neither showed the least alarm.

Desiring to make other exposures, and fearing lest the birds might satisfy their appetites and leave, I again approached. The birds behaved as before. This performance was repeated four times. After the second exposure I waited for the female to finish her meal and then the male came to the bread tray. The female was neither attentive to her mate nor considerate. When she was through eating she drifted down stream with not so much as a glance at her handsome companion. While floating a few feet off shore she dipped her bill into the water a number of times. After each dip she raised her head and appeared to swallow. In this manner she washed down her food and then decided to have another mouthful. She came again to the bread and deliberately shoved the male out of her way. She ate calmly, in contrast to the hurried and nervous manner of the male. He gulped his food in awkward haste as if in constant fear of being deserted by his mate.

In spite of the interruptions both birds were through eating in fifteen minutes. Perhaps, the male could have eaten more, but the female was moving up stream and he hurried away to catch her. He moved rapidly against the swift current and was soon in his accustomed position, a few inches in rear of the female. As the birds moved across the water they dipped their bills under the surface in the manner of Shoveller Ducks. However, I am inclined to think that they were drinking rather than feeding.

Just before the birds reached their favorite perch on a partly submerged log they dipped their bodies under the surface of the water several times. Each time they came up they struck their wings against the water, making a great splash. Finally they raised their bodies above the water and flapped their wings vigor-



HARLEQUIN DUCKS ON THE MERCED RIVER, YOSEMITE VALLEY, CALIFORNIA.

ously. A thorough bath they had and then they climbed onto a perch a few inches above the water. While the ducks were sitting on the log a Kingfisher came rattling down stream and alighted on a dead branch ten feet above their heads. Both birds raised their heads and looked up but neither appeared excited nor alarmed.

The birds took turns sleeping. When sleeping they turn their heads half around and rest their bills on their backs. All the while the male was dozing the nictitating membrane over his eye kept flashing like a tiny electric light. These eye-winkings took place about twice every second. When the male awoke the female took a nap. They spent forty minutes here and then a fisherman came down the river-bank and they were frightened away. They swam the swift current to the opposite shore, worked their way up stream, recrossed and drifted down to the feeding station, for another meal. It was just one hour since they last ate. As before the female ate first and the male waited patiently. After this meal they did not bathe, but moved up stream a few yards and stepped out on a root to preen their feathers. Twenty minutes later they were in the water again. This time they drifted past the lunch counter and when they reached the swift riffle below camp the female dove twice. The male waited on the surface for her to reappear and then they went down stream a short distance and disappeared in the dense strand of bare willow shoots.

When the birds appeared in front of camp on the morning of April 12 they were acting strangely. Apparently they were making love. They were bobbing and bowing to one another, swirling around, touching their bills together and uttering little chatty sounds. One of the moves on the female's part was to slowly submerge her body until just her head and neck appeared above the surface of the water—a bold invitation, on her part, for attention. In spite of the wanton actions of the female the love-making failed to reach the climax. When the ceremony was over the birds moved in close to the shore and slowly worked their way up stream, diving every few minutes as they moved along. About two hundred yards up stream they climbed out on a log and rested a few minutes. They preened their feathers but did not sleep. For the first time the male was seen to act first. He slipped into the water and spoke quietly to his mate, as if to coax her into the

water. However, she refused to be coaxed so he climbed back onto the log again. Two minutes later, without any apparent conversation, the birds left the perch and started up stream. On this occasion, and subsequently on many other occasions, we followed the birds along the stream, studying their habits when feeding under natural conditions. The waters of the Merced River are very clear and we could easily follow the movements of the birds, even to a depth of six feet.

Harlequins are expert swimmers and divers. They dive and swim under water with all ease of a grebe, besides possessing the ability of the Water Ouzel to walk about on the river bed against the swift currents. When feeding, so far as we were able to observe, they show no preference as to depth of water. When working up stream along the shore they wade in the shallow water, prying among the stones. Where the water is deeper they tip up in the manner of Mallard ducks, and where the water is still deeper they dive. They dive in water a foot deep and they dive in water six feet deep, always going down where there is a gravelly bottom. Most often they stay under water not more than fifteen seconds. Often they stay down twenty seconds and occasionally they remain under the water as long as twenty-five seconds. To leave the surface of the water they use their wiry tails as a spring to make the plunge and as they go down both wings and feet are used as a medium of propulsion. When once on the gravelly bottom the wings are closed, the head is held low, and the progress is made against the current, as they walk along poking amongst the stones. When coming to the surface they float up like bubbles, without movement of wings or feet. Their bills break the water and their bodies pop suddenly onto the surface where they rest a moment. While poising on the surface between plunges their bodies float high. When earnestly feeding seldom more than ten seconds elapse between plunges. The birds seldom dive simultaneously. The female usually acts first.

At times the Harlequins choose the swiftest riffles and when feeding there, their method is the same as when in the less joyous waters. They apparently dive from any position with equal ease, but always as they go down they turn up stream and even in the swiftest currents they come up in about the same spot at which

they went down. When feeding in these racing waters they merely hesitate on the surface and four or five dives are made in rapid succession. Such work as this is strenuous, but the birds are quite at home in the swiftest currents, and when tired from their exertions they swing into an eddy behind some snag or boulder and rest as they bob about on the surface.

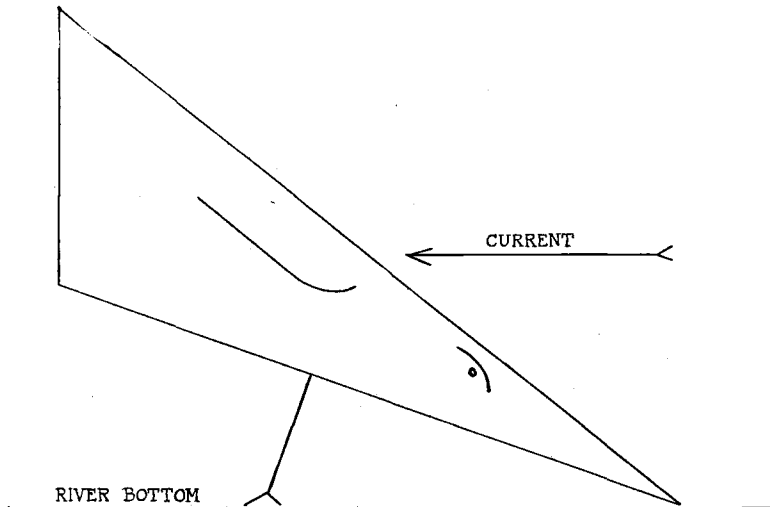


FIG. 1.

The diagram (Fig. 1) shows the method of the Harlequin Duck when feeding under water. The head is held down by physical strength. The current against the angle of body throws pressure on the feet and enables the bird to maintain its position without swimming. Where the current comes with just the right speed the bird may stand still, but in lesser currents the bird must move forward.

The female Harlequin has a large appetite and a wide range in the choice of food. She will eat cooked potatoes, macaroni, meat, raisins and bread. She gets all of these things at the lunch counter and then often pays a visit to the place where the vegetable parings are dumped. She has been seen to eat raw potato peelings. The male never eats so much as the female. He may have the appetite,

but he is so polite that he always waits for the female to finish eating before he starts and then he must gulp his food lest the female desert him while feeding.

Bread, potatoes or other foods taken from the tray were always thoroughly mashed and water soaked before being swallowed. Feeding under natural conditions the bulk of their food probably consists of aquatic insects and it is doubtful if fish are ever taken. Not once did we note the Harlequins feeding on roots, grasses or other growing vegetation; nor were they ever seen to swallow any large object. On certain occasions the female has eaten as many as six full slices of bread in a single day. One slice just about constitutes a meal. Of the different things which were placed on the floating tray bread was the most acceptable.

On the morning of April 22 the male Harlequin came alone. For two weeks the birds had been constant companions and to see the male alone was a surprise; almost a shock, for we could easily believe that something had happened to the female. Flying from up stream he alighted on the water near the feeding tray and as he moved forward he uttered a new note and his voice was louder and clearer than usual. He ate but little and then stepped out on the bank and preened his feathers. In a few minutes he left his perch and flew back up the stream.

After a hasty breakfast we hurried up the river looking for the birds, hoping if they were nesting that we might get an idea of where to look for the nest. Nothing was seen of them until twelve o'clock when the pair was seen flying down stream. We were a mile from camp and when we got back the food tray was empty and both birds were sitting on the bank. They spent most of the afternoon in the vicinity of camp. At six-thirty they had their last meal and then left together, flying up stream.

On the wing the Harlequins are strong and swift, and although they fly with rapid wing beatings they fly silently. In flight they remind one of the Scoters, but they rise more gracefully from the water. There is no splashing of water when they rise and in a few swift wing beats they have caught their stride and are going at full speed. Often in the evening after the last meal of the day they left so silently that we did not hear them go. Their arrivals in the morning were different. There would be the sudden splash

to announce their presence and if the food tray happened to be empty the clear calling voice of the male was soon heard. On one occasion we heard his call but did not answer promptly. When we came out of the tent he was coasting down stream a hundred yards or more away. We called to him and he arose at once from the water and flew back up stream to receive the crumbs that were tossed on the water. While we sat on the bank tossing bits of cake the Harlequin, by paddling his feet, held his position on the river and waited for the food to drift down. He seldom took the food as it came but waited for it to pass on the current and then with a quick turn he would pick it up eating as he drifted a foot or two down stream. He seemed unable to swallow any large object and when a crust of bread came his way he either let it pass or took it in his bill and thoroughly mashed it while holding it under water. Small crumbs that could be taken into the mouth with water seemed to please him most.

From the day the male first came alone the birds were not seen so much together. The male spent much time in the vicinity of camp, but the female was not often seen during the day. She usually came late in the day, however, and would come flying down the river, alight at the food tray, eat a hearty meal, bathe, preen and then fly back up the river at dusk. The male knew of her habits and would be awaiting her arrival. He always became much excited when she arrived and would give her an enthusiastic reception. The female acted differently and would seldom meet his advances with any show of pleasure.

On the evening of April 26 the female refused to have anything to do with the male. She sat on the bank preening her feathers when the male came flying up the river and alighted with a splash some fifteen feet away. He bobbed and bowed, he turned and swayed, and dipped his head under the water, all the while speaking in a low voice. His actions brought no response from the female except that she crouched lower and dipped her bill into the water and remained motionless as if attempting to hide. Finally, after five or six minutes, the male gave up in disgust, swung into the current and sailed off down the river. The female left soon after, going up stream. She was heavy with food, having eaten there slices of bread, and rose from the water with all the grace of a Coot, flapping both wings and feet.

From the day of the first estrangement the female was not seen below camp. Most of her time was spent somewhere up stream. Usually she came to the feeding tray towards evening, but there were a few days when she failed to come at all. When she came in the evening she was always very hungry and would eat two or three slices of bread to satisfy her appetite. After one of these hearty meals she would bathe thoroughly and then climb onto a perch and preen, before flying away up stream. If the male was not about when she arrived he usually put in his appearance before she left. Most often he tried to force his attentions upon her, but occasionally he seemed quite satisfied to linger near and act as guard while the female ate or preened. On these occasions there was much conversation carried on in a low tone of voice, with the male doing most of the talking. If given any encouragement at all the male would leave with his mate when she flew up stream. We had no way of telling how long the birds stayed together. However, they did separate, for the male always appeared alone in the mornings.

When alone the male is timid and hesitates to come to the tray if any one is in sight. Also it has been observed since the birds separated that the male feeds mostly on the surface and seldom dives as he does when the female is about to set example. He has frequently been observed to paddle slowly on the water with his bill held just beneath the surface. His mandibles are kept in constant motion in the manner of feeding Shoveller ducks.

Our experiences with the Harlequins came to an end on the afternoon of May 9. We were in the tent when we heard the loud clear call-note of the male bird. When we got to the river-bank both birds were coming down stream. The female came and ate at the feeding tray while the male stood guard a few feet away. After eating the female worked along the edge of the stream among the stones and roots. The male kept close to her, alert and nervous all the while uttering his low chatty notes, his sole idea being apparently to guard the female. The female ate again at the tray, bathed and dove a number of times and then both birds started to drift down stream on the swift current. When about one hundred yards below camp they rose from the water and flew down stream. They were last seen going under the Sentinel Bridge.

Chief Ranger Forest Townsley reports that a pair of Harlequin Ducks have visited the Yosemite for a number of years. We hope to see them again next year and to have another try for their nest. Last year we noted a lone female as late as July 28.

From the available literature on the subject one might get the impression that Harlequin Ducks are silent birds. However, this was not the case with the particular pair which we had under observation. When the birds were together the male carried on a low, chatty conversation much of the time. The female was more or less silent, and appeared only to speak when she wished to chide her mate. Besides these chatty notes the male had another call, which he uttered in moments of excitement, or when he wished to attract attention. This was a loud, clear "qua, qua, qua," uttered in rapid succession. Occasionally just a single note was uttered which was particularly loud and clear. The low notes might remind one of the conversational notes of the Coot, but the loud call was quite distinctive and could not be compared with the notes of other water birds with which we are familiar.

Yosemite, Calif.

A MYRTLE WARBLER INVASION.

BY CHARLES L. WHITTLE.

FROM February 21, 1920 to March 4, 1920, my wife and I spent the entire daylight time bird cruising about Savannah, Georgia, and Beaufort, Walterboro and Charleston, South Carolina. In addition, several excursions were made for ten or twenty miles south and east of Walterboro. With the exception of February 21 and March 4, the temperature was considerably below the normal for this section of the State and the season was correspondingly late. In fact official reports of the U. S. Weather Bureau for the entire month of February, 1920, show a subnormal average temperature, not only for South Carolina as a whole but for