

OBSERVATIONS ON THE BEHAVIOUR OF CERTAIN ARCTIC BIRDS

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IN the summer of 1955 I made an ornithological expedition to the mouth of the Anderson River, N. W. T., Canada, which was supported by a grant from the Banting Fund provided through the Arctic Institute of North America. The period from June 3 to 21 was spent at Aklavik and that from June 21 to July 1 at Tuktoyaktuk. Except for a week spent at Harrowby Bay in mid-July, I remained at or near the mouth of the Anderson River from July 1 to August 24.

After the Anderson River was reached I was on my own, though unexpected meetings with a white trapper from the upper Anderson River, a geographical survey party, and a temporary R.C.A.F. detachment, followed. Certain disadvantages attendant on working alone in a wilderness area became very apparent. Much time was spent hunting and fishing in order to feed myself and the Eskimo dog that I had brought with me from Tuktoyaktuk as companion and pack dog. Travelling and collecting as many birds and small mammals as possible made up part of my programme. These demands on my time had the result that observations on bird behaviour were often incidental rather than systematic. Nevertheless, for some species the observations reported below add new facts or corroborate the somewhat meagre data available in the literature.

All observations were made near the mouth of the Anderson River, 69°59'N. 129°W., in 1955, except where another year or locality is specifically mentioned. Subspecific names are used only when the local subspecies has been determined by Mr. Earl Godfrey of the National Museum of Canada from specimens collected in 1955.

Two observations of a general character are presented first and these are followed by observations made on certain individual species.

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The effect of avian distraction displays on an Eskimo dog

The dog, which was my companion from July 1 to August 24, was a 1½-year-old male, with some previous experience as sled dog but none as a pack dog. He showed apparently natural hunting instincts and when unleashed would hunt birds and lemmings with vigour and occasional success and had to be restrained from mauling birds that were shot in his presence. The reactions of this dog to avian distraction displays were presumably very similar to those of a wolf and in general terms similar to those of the arctic fox, both important predators on the tundra. Distraction displays made by adult birds with young were completely effective in drawing the dog away from the young and causing him to pursue one of the adults, which would later rejoin its family. This happened in all encounters with American golden plover, rock ptarmigan, and willow ptarmigan. Breeding pairs with young of the last-named species were encountered very frequently. No failures to decoy the dog away from the young were seen, for no other species of birds with young were encountered when the dog was loose. Once he snapped up a downy semi-palmated sandpiper, but on this occasion the parents were either not about (a point that I neglected to note at the time) or if present, they certainly did not perform a distraction display.

Hunting habits of certain falcons in relation to a human intruder

About midnight on July 24 at Harrowby Bay I took a walk through an area of low willow scrub, flushing a number of Lapland longspurs, which had been roosting in this cover. Suddenly there was a "wooshing" sound just behind me and a peregrine falcon flashed by within a few feet and then climbed up steeply, having apparently just missed a stoop at one of the longspurs.

On July 2 a grey gyrfalcon, which had no nest or young close by, glided about me in circles at a surprisingly close range.

On August 21 and again on the 23 a pigeon hawk appeared on the wing rather suddenly and made one or two low-level flights around me before taking off.

It seems that these hawks were taking advantage of the possibility of small birds being flushed by my progress and that they may react similarly to any large mammal on the move. In arctic areas a large mammal encountered in this manner would rarely be a man and he, if he were a native, would not be dangerous to hawks. The habit noted above is analogous to one reported from the Sudan, where certain birds are said to follow elephants for the sake of insects disturbed by their passage.

Observations on individual species

Arctic loon, *Gavia arctica pacifica*

The following calls were repeatedly recorded from loons of this species: a cat-like wailing "pwoo hooee, pwoo hooee", a dog-like yelp, and a growling "kurr".

The following alarm and distraction behaviour was observed on July 16 when a pair with two downy young (one of which was collected) were encountered. At my approach the swimming adults repeatedly uttered the "kurr" call. When I was quite close to the downies the adults gave a dog-like yelp "yup" while swimming in a guarded manner toward me. Each yelp was followed by a sudden noisy "crash dive" of short duration and these yelps and dives were repeated several times.

In contrast, a bird of this species that I disturbed on a nest with eggs in July 1953 on southwestern Banks Island merely slipped off the nest quietly and remained silent and inconspicuous.

In July and early August groups of three to four birds were repeatedly seen in the evenings when it appears breeding birds visit other adults on neighbouring lakes. These groups engaged in a social "play" probably tinged with sexual and aggressive significance. Individuals would give the "kurr" call while swimming with the throat and the pale-grey plumaged areas of the head distinctly puffed out. The feline "pwoo hooee" call was also uttered as well as variants of this call, which may be recorded as "maaoo" and "trr wheeoo". Finally, the yelps followed by crash dives were given, first by one, then by another bird, in quick succession. A similar midsummer evening display of four adults was seen on July 29, 1949 in the Mackenzie Delta. In that instance, in addition to much calling and diving, wing flapping and short flights were also observed. Midsummer gatherings of this type have been recorded in the European range of the species (Witherby *et al.*, 1943). The growling and yelping calls apparently indicate excitement associated with fear and alarm or with aggression and display to the opposite sex. However, it is possible that both are basically part of sexual display and occur by displacement, as defined by Thorpe (1951), during the distraction behaviour of birds with young.

Yellow-billed loon, *Gavia adamsii*

There is little information on the courtship call of this loon. On Banks Island in the summer of 1953 I heard loon calls on several occasions from birds, which were out of sight, in an area where this species was fairly common and where some specimens were collected. I have never heard this call in areas where only the two smaller loons occurred. It was a loud "yodelling", very reminiscent of the call of the common loon, *Gavia immer*. It was clearly the homologue of the feline calls of the two smaller loons but more complex and more prolonged.

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Red-throated loon, *Gavia stellata*

On July 15, just off shore near the mouth of Mason River, a group of four of these loons was seen in display. Individuals uttered a mewling call from time to time and at the same time puffed out their throats. Two of the four birds rushed about swiftly in the water in a nearly upright attitude with only the rear of the body submerged and raised head and extended neck. This appears to be the "plesiosaur race" described by Huxley (quoted in Witherby *et al.*, 1943) and is reminiscent of the more extreme but similar display well known in the western grebe. The "roll growl" call said by Huxley to accompany this display was not uttered by the birds I observed.

In the morning of July 23 at Harrowby Bay there was much flying about of red-throated loons, which gave the usual "ka ka ka ka" flight call. These birds frequently went into long glides with the wings held stiffly at an angle of about 15° above the horizontal and the head markedly below the level of the body in a posture similar to that recently described by Sutton and Parmelee (1956) in the arctic loon, but without the lowering of the feet.

Old-squaw, *Clangula hyemalis*

T. H. Manning, in correspondence, has raised the problem of where subadult males of this species spend their first summer. The observations to be reported here (although I was not able to collect a subadult male) throw some light on this question. At Tuktoyaktuk during the period from June 22 to July 1 males with noticeably short central tail feathers, presumed to be yearlings, came to a coastal lagoon, whereas at small lakes a little farther inland only adult males and females were seen. On the lagoon, around which there were probably several old-squaw nests, adult males, some in breeding plumage, but at least two still in winter plumage, were at times seen swimming about and calling. Females would emerge from the shore and were courted by the adult males, which swam with horizontally extended necks after the females. From time to time short-tailed males flew into the lagoon from the sea and began courting the females but were always chased off by one or the other of the adults males. This would suggest that yearling males do not pair and are unlikely to succeed in mating. They appear to spend the nesting season largely at sea but at least to some extent close to breeding grounds.

Willow ptarmigan, *Lagopus lagopus albus*

Distraction display: Two females, disturbed while incubating on July 1, did not display at all. However, Hanson *et al.*, (1956) recorded that an

incubating female rock ptarmigan attacked the observer with spread wings and uttering a hissing noise.¹

A female willow ptarmigan with newly hatched downy young encountered on July 1 came at me with laterally extended wings. The male was close by but took no part in the attack. Other instances of attacks on people by females with young of this species are reported by Höhn (1957). Later, when pairs with young able to fly were encountered, both adult birds would approach me and then feign injury. Generally the male would approach closest and the female would return to the young, ultimately to be rejoined by her mate. It appeared that while the young are unable to fly the female is more active in distraction display but that later when the young are able to fly she tends to remain with the chicks while the male attempts to lure away the intruder by injury feigning. Thus on August 10, while out with the dog, I encountered three ptarmigan families in succession along the shore of the Anderson River. On each occasion the female and young flew over the bank while the male allowed close approach and then drew off the dog by short, low-level flights. Evidence of the break-up of family groups was observed on August 11; on this day a group consisting only of adult males was encountered, as well as several females each with young but without an attendant male. On being disturbed these females took off to a distance, without any attempt at injury feigning, nor did they appear to rejoin their young.

Evidence of non-breeding: Willow ptarmigan and more locally, rock ptarmigan were unusually abundant in the summer of 1955 about the mouth of the Anderson River. On the north shore of Harrowby Bay a flock of at least forty and another of ten adult willow ptarmigan, as well as one flock of seven adult rock ptarmigan were seen during the period July 18-26. Since breeding birds would have either young or eggs at this time, these birds must have been non-breeders. It is possible that the high density of population may have inhibited breeding, as there were no indications of lack of nest sites or food.

¹The following observations may be of interest.

At about 2300 on July 14, 1954 near Eureka, Ellesmere Island, I was walking along the foot of a creek bank, with my eyes on the ground watching for plants and insects, when suddenly, with a loud whirring of wings, hissing, and snapping of mandibles, a bird almost flew into my face. It took a second or two to recover and then I saw the cause of all the commotion: a brown rock ptarmigan hen was standing in a clump of *Cassiope* in threatening attitude, ready to fly at me again. She did so in a half-hearted way when I stepped forward and nearly into her nest with six eggs in a deep depression between hummocks. Continuing on my way, the hen kept abreast of me at a distance of some 100 feet for the next 200 yards, feeding a little here and there, but always watching me closely.

On July 6, 1952 at Mould Bay, Prince Patrick Island, a female of the same species was discovered on her nest almost in the weather station area, only a few feet from a well-travelled tractor trail, just when the young were hatching. This hen let herself be stroked and even picked off the nest without any fuss whatever. — *Edit.*

Semipalmated plover, *Charadrius semipalmatus*

Distraction displays by adults in charge of downy young were observed on July 8 and 28. On the first occasion a pair of adults ran ahead of me along the sandy shore, holding their tails depressed and fanned out. From time to time one of them stopped and still keeping the depressed, fanned-out tail toward me drooped both wings and waved one. On the second occasion a single adult bird was involved. It also ran ahead of me with its tail fanned out and depressed to such a degree that the tips of the tail feathers actually scraped the sand. While running the wings were held in the normal, closed position but their tips, that is the portion visible from the rear above the depressed tail, were waved in a rapid, tremulous motion. Much the same distraction display was observed in birds of this species by Scott on the Perry River in 1949 (Scott, 1951).

Least sandpiper, *Erolia minutilla*

Display flight: On June 7 and 8, 1955 the song flight of this species was seen within the settlement of Aklavik, where a nest with four eggs was found on June 20. The bird was circling about 50 feet above the ground, at times gliding with the wings elevated above the horizontal and interrupting the glides by short flights with peculiar tremulous motions of the outer parts of the wings. The song, which accompanied this flight, was a repeated "torri trri", which changed at times to "wee wee wee", the second version being reminiscent of the song of the spotted sandpiper. This description of the song flight is essentially similar to that given in Bent (1927).

Stilt sandpiper, *Micropalama himantopus*

Display flight: On July 4 I encountered several adults with downy young in a salt marsh beside the Anderson River. The song flight of the adults was delivered while hovering, facing the wind, 10 to 20 yards above the ground. The song was a repeated "whoeee whoeee", varying in loudness and frequency of repetition, and changed to "pooee" on landing. A call apparently indicating wild alarm was "churr" or "purr". Bent (1927) gives no information on the courtship of this sandpiper.

Northern phalarope, *Lobipes lobatus*

The display of this phalarope has been fully described by Tinbergen (quoted by Witherby *et al.*, 1943). However, the following observations made in June 1955 at a coastal lagoon at Tuktoyaktuk where these birds were almost certainly nesting are worth recording. On this lagoon females

held and defended segments of the shore line each about 20 yards long by patrolling on the water and chasing other females. Males were almost invariably seen only on shore where they were skulking among the marsh grasses. I collected a female as well as a male to confirm beyond doubt the sex of one of the individuals active in territorial defence.

Parasitic jaeger, *Stercorarius parasiticus*

The distraction display of this jaeger has been described in some detail by Williamson (1949). However, a display I saw on July 23 at Harrowby Bay included a feature not recorded by Williamson. The members of a solitary pair, which had a downy youngster, alternately made low-level, stooping flights over me, calling "gwük" or "kwooeek". Williamson does not mention the calls that accompanied this aggressive display in his observations and Witherby *et al.* (1943) state, in connection with stooping flight attacks, that they are accompanied by a "tuneless tick-a-tick call". While one of the adults observed by me was making a series of flight attacks, the other was generally on the ground giving the "lure display", that is injury feigning, much as described by Williamson. This was accompanied by a feeble "peep peep" call that, as Williamson suggests, may well be derived from the food-begging call of the young bird. A feature not included in Williamson's description of the "lure display" shown by both the adults that I observed was a fluttering of the wings while only one foot remained on the tidal mud. This created very realistically the impression that the bird was caught by the foot.

Predatory behaviour: The jaeger's habit of chasing terns to make them drop their prey, which is then seized by the jaeger is well known. However, during nearly three months spent at the mouth of the Anderson River only one such pursuit of a tern was seen. On August 13 two parasitic jaegers were seen chasing in co-operation with one another a flying semipalmated sandpiper. At one time one of the jaegers actually had a grip on the sandpiper, apparently on its wing. The sandpiper managed to free itself but the chase continued out of sight and it is likely that the sandpiper was ultimately killed. On July 13 a parasitic jaeger was seen mobbing a grey gyrfalcon.

Long-tailed jaeger, *Stercorarius longicaudus*

Distraction display: The literature on the distraction display of this jaeger is briefly reviewed by Pitelka *et al.* (1955). Some observers recorded a distraction display, whereas others did not observe it in nesting birds of this species. Hansen *et al.* (1956) note that there was a great range of individual variation in the aggressiveness of different pairs, some abandoning the nest area altogether when an observer was at the nest. At one nest with eggs, one of the adults repeatedly struck the observer on the head during stooping flight attacks.

On July 23 I came across a solitary pair of these jaegers which had a downy youngster on a hillock in a grassy valley near Harrowby Bay. Before the disturbance one of the adults was on guard on a hill along the side of the valley above the hillock that sheltered the youngster while the other parent was in close attendance on the chick. At my approach the two parents regularly alternated aggressive displays, that is, stooping flights with the "lure display" performed on the ground. Gliding stoops were made to within a few feet of me but no actual contact was made. The stoops were accompanied by "kwooeek kwooeek" calls. Scott (*in* Hanson *et al.*, 1956) describes a "curiously musical scolding note", uttered in flight attacks.

The "lure display" was of the injury-feigning type, consisting of wing flapping accompanied by a peeping call. Both forms of display were continued after I had caught the youngster and placed it in my rucksack.

Glaucus gull, *Larus hyperboreus barrowianus*

The call of the young glaucus gull does not seem to have been recorded. On August 23 flying young called "kiarr örr örr" only. This was to my ears much like the call of immature herring gulls but perhaps deeper in pitch. From downy young I heard a peeping call quite like that of the young of other large gulls.

Sabine's gull, *Xema sabini*

Descriptions of the call of this gull (Witherby *et al.*, 1943) are somewhat vague. On July 23 at Harrowby Bay the following rendering of the call was recorded: a tern-like "tä trr i ik". This was uttered by a pair hovering above me and probably indicated mild alarm.

Arctic tern, *Sterna paradisaea*

On August 13 I heard from a flying young bird a call that does not appear to have been described. It was a deceptively faithful imitation of the "whistling" sound of a mallard's wing beat, but was delivered vocally by the tern.

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