CORRESPONDENCE.

Injury-feigning in Nesting Birds.

Editor of 'The Auk.'

Dr. Herbert Friedmann's splendid study "The Instinctive Emotional life of birds"[1] should provide mental stimulus for field workers in ornithology, it deals so largely with the sort of experiences that out-door ornithologists and oölogists have opportunities for evaluating. I, myself, was particularly struck with the part of his treatise on "fear" that deals with that well-known phenomenon among nesting birds, the apparent "injury-feigning" that tends to distract an enemy's attention from an imperiled nest. Friedmann's conclusion is: "Injury feigning is a compromise between fear and reproductive emotions. Fear impels the bird to leave its nest; the bond to the nest and eggs or young prevents the bird from doing so; the result is a crippled departure. In some regions where enemies are absent, as in the Galapagos Islands, birds seem to have little or no fear."

It seems to me (with no claim, however, to proficiency in the study of behavior) that certain of my own observations point in other directions. Friedmann's reference to Galapagos birds in particular reminded me of a peculiarly surprising fact regarding one species that seems to me in flat contradiction to his belief. I will return to this later.

For one thing, this action appears to be a racial peculiarity, invariably exhibited in some species, never in others, which in itself argues against a purely mechanical cause. More than that, is it not a habit that is common to all species within certain groups, never exhibited within other groups? The Killdeer is taken by Friedmann as an example of the injury-feigning devotee; from my experience with that and several other species of Plovers, and from my reading, I infer that it is the usual resort of many, perhaps all, of the species of this group. In the several species of Doves with which I am familiar, injury-feigning is resorted to in most elaborate manner. But are there any other kinds of birds that do this? Doves and Plovers happen to be the only ones within my own experience, all, at least, that I can now recall having seen or read about, unless Kipling's account of the actions of Darzee, the tailor-bird, is based on fact.

On the other hand, in contrast to the Plovers, there are some species of waders (the Lesser Yellow-legs occurs to me as a conspicuous example) that never feign injury, but hurl themselves at an intruder with shrieks of protest. Is the Plover more stricken with fear than the Yellow-legs? I think not. I can not recall that I have ever seen a Passerine bird resort to injury-feigning. Gulls and Terns hover about, screaming and diving at one's head; I have never seen a Gull or Tern posing as a wounded bird.

I have had occasion to observe the Semipalmated Plover (*Charadrius semipalmatus*) on the breeding grounds many times. My appearance on the broad sand-bars or gravelly river beds that formed their home was heralded at once by several birds circling over-head with plaintive calls and one or more painfully fluttering over the ground before me. My skill never sufficed to find a nest by search, and I never flushed a parent bird from the nest, but I found several by stratagem. Concealing myself in a willow thicket at a distance, perhaps two hundred yards from where I thought the nest might be, I watched the birds with binoculars. Once that I was out of sight they soon settled down, and it was not hard to detect a female that was

[1] The Psychoanalytic Review, Vol. XXI, nos. 3 and 4, July and October, 1934.

planning to return to her nest. After several false moves and some wide circling she would make her return, so swiftly and unobtrusively that it was hard to follow her movements. This much is certain, that, when on approach of danger the incubating bird left the nest, she ran a long distance from it and toward the intruder before beginning the injury pretense. And invariably her mate, feeding nearby, and often other neighboring pairs, joined in the demonstration.

To return to the Galapagos example. On those islands there is a species of native Dove (*Nesopelia galapagoensis*). As with the other island birds, it is devoid of fear of man, feeding at one's feet or perching placidly within arm's reach. But, and this on islands where there are no native enemies to menace the nest, an incubating Dove, when approached by man flutters painfully away according to the approved Dove technique. I cannot believe that this bird is any more frightened in this situation than are the neighboring Frigate-birds and Boobies, that flatly refuse to leave their nests at all. The Dove is using a method of protection that has been implanted among her reactions for ages past, and it may be noted that this utterly useless but quite characteristic habit has survived through a period sufficiently prolonged to have produced what we designate a separate genus. Frigate-bird and Booby, too, are using the one method of protection that they know to be efficacious, for unless a nest is actually occupied it will certainly be robbed of contents or structural material by neighboring Frigate-birds. A brooding Frigate-bird may be lifted from its nest, but howsoever reluctant it is to leave, contending emotions will not result in an imitation of injury.

Ptarmigans, especially the Willow Ptarmigan are extremely aggressive in defense of their young, and the blustering attack of parent birds shows no indication of fear. Just in proportion as the young grow and develop speed in their departure, so do the parents relax in their tactics to hinder pursuit. I have never seen a Ptarmigan use the "wounded-bird ruse," and I cannot recall having seen any other grouse or any Quail do so. On June 15, 1934, I found a nest of White-tailed Ptarmigan (*Lagopus leucurus*) (some fifteen miles northeast of Atlin, British Columbia, at an altitude of about 5000 feet). It was on an open hill-side where the brooding bird had an uninterrupted view of at least half a mile in every direction, but she sat on her nest unmoved, although I almost stepped on her. I sat quietly alongside and after a few moments ventured first to touch her, then to stroke her back, at which she hissed but made no other demonstration. I wished to see what she was sitting on, and to do so I finally had to put my hand beneath her breast and gently lift her from the nest, disclosing eight eggs apparently well incubated. Even then she did not leave, but with wings and tail partly spread and body feathers ruffled, she pecked at my hand and arm and slipped back upon her eggs as soon as I released her. In every action she might have been a "broody" Bantam Hen, well used to being handled. With my hand pressing against her breast I could not detect any quickening of the heart beats; she emphatically was not frightened. Just how these facts should be marshalled in any discussion of bird psychology I confess I do not know, but detail them here as of possible value to some more competent student of behavior. What I would like to know is whether this bird would have acted the same toward an approaching bear or coyote. If so, she and her eggs would certainly have been destroyed. Or did she class me as one with the harmless caribou and moose?

Here is another incident in bird behavior that I will not attempt to classify or explain. A Lesser Yellow-legs (*Totanus flavipes*) was shot, one of several birds that were making the hullabaloo usual to these waders when eggs or young are approached, and making this fuss only in a rather restricted area. On dissection of this bird it

was evident that it had not been breeding, and that it would not do so that summer. At the same time there were flocks of non-breeding Yellow-legs in other marshes that never raised any objection to my near approach.

To return to the subject of injury-feigning by incubating birds, my objections to Friedmann's mechanistic explanation of this ruse, briefly summarized, are as follows. It is performed by certain species (perhaps by all species of certain groups), while other species nesting under closely similar conditions never do it. A nesting Plover, on the first appearance of danger, will unobtrusively leave her nest, hasten toward the menace, and only begin her antics when close to the enemy. There are many birds whose nests are usually found (by me, at any rate) by flushing the brooding parent at very close range (Meadowlark and Junco, for instance), and who do not resort to the cripple mimicry.

On the whole, I am inclined to doubt that any mature bird is really frightened (that is, terror stricken) until it has received an injury, or until the moment when it realizes that its usual modes of escape or defense are fruitless. Hasty departure from danger does not imply fear.

HARRY S. SWARTH

California Academy of Sciences,
San Francisco.