

GENERAL NOTES

An Interesting Displacement Movement in a Slate-colored Junco.—I banded a male Slate-colored Junco (*Junco hyemalis*) May 4, 1951, putting the aluminum band on his right tarsus and a green one on his left.

Eleven days after his return in 1953, he was seen courting a female which had just arrived. Her behavior indicated plainly that her sexual drive had not yet reached high intensity. She faced him as he pursued her, showing him her breast, or hopped aside or away to evade his approach, thus displaying her urge to escape to the point of aggression.

The male pursued her doggedly with wings drooped and tail lifted. Every time when the female withstood him, he stooped and with great intensity pecked at the ground and at his aluminum band on the right tarsus.

Obviously, this pecking at the ground and at the aluminum band, both irrelevant actions in the present situation, were displacement activities, a "substitute behavior" (see Nice, *Studies in the Life-history of the Song Sparrow*. II, 1943, *Trans. Linn. Soc. N. Y.*, 6: 156) as his sexual drive was denied by the female's condition of unreceptiveness.

In his article on "Derived" Activities; Their Causation, Biological Significance, Origin, and Emancipation during Evolution (*Quarterly Rev. Biol.* 1952, 27: 1: 17) Dr. Tinbergen arrives at the conclusion that, "So far as we know at present, displacement activities are always innate motor patterns, at least in fish, birds, and most mammals."

In the behavior of the junco male, however, there were two different displacement movements, pecking at the ground, a feeding movement that certainly is innate, and pecking at the band, a movement which is not innate. A curious detail is also that this particular bird, so far as I had observed, had not previously shown annoyance with the band after it was first placed on his leg, as is common with many newly banded individuals. The pecking of the band was therefore not an earlier established habit, but a displacement movement apparently derived from "the influence of external stimuli" (see Tinbergen, *op. cit.*, p. 19). It was learned, a purely acquired movement after the band was placed on its leg.

In 1954 and 1955, I observed the same male in identical situations. Every time he pecked the aluminum band, not the green one, when the female was unresponsive to his advances. In 1954, his display was of great intensity with wings drooped, tail spread wide and turning to show off the white outer rectrices, and all the feathers on back and rump erected, all of which showed a sexual urge strongly admixed with aggressiveness. This time his displacement pecking on the band was very vigorous and the pecking on the ground omitted.

Dr. Nice (*op. cit.*) relates how one of her hand-raised Song Sparrows, Y, tugged at strings when his drive to fight another one, A, was inhibited. In this case, however, captivity may have influenced the form of displacement movement taken, or the string may have appeared like dead grass or rootlets to the bird; in other words, the movement may have been innate.

Discussing the observation, Dr. Nice (*in litt.*) modified Dr. Tinbergen's conclusion by expressing the opinion that "most displacement activities are innate, but that some can be learned." It is well known that in man many learned displacement patterns occur and Tinbergen (*op. cit.*, p. 17) gave examples, "lighting a cigarette, fumbling with keys." Careful observation may reveal more examples of such acquired patterns in birds and other animals.—LOUISE DE KIRILINE LAWRENCE, *Rutherglen, Ontario, Canada.*