

*'Spoiled' Youngsters . . .*

## CONDITIONING IN BIRDS

BY AUSTIN L. RAND  
CURATOR OF BIRDS

**T**O CONDITION, in psychological terminology, according to my unabridged dictionary, is to attach a subject to a new stimulus or response; it may also mean to produce a new attachment of stimulus and response in a subject. The classical experiments in conditioning and reflexes are those of Pavlov in the last century. The one best known consisted of sounding a bell each time food was given to a dog. Finally the salivary response resulted when the bell was rung even without the food being given to the dog. The dog was *conditioned* to the bell. First it had responded to the food, then to the food and the bell, and finally to the bell alone, by a flow of saliva. The beauty of this experiment is its simplicity, dealing as it does with a single reflex.

Though much behavior is more complex, experiments have been worked out to show how environment, in a broad sense, can influence inherited behavior. An illuminating example of this is one dealing with young loggerhead shrikes and the duration of their infantile behavior. Young shrikes, while in the nest, as with young passerine birds in general, are fed directly by their parents placing food in their mouths. One of the earliest behavior patterns these young birds acquire is to stretch up with widely opened mouth, fluttering wings, and buzzing calls, in anticipation of being fed. This we call *begging*. Though typically infantile behavior, it may reappear in courtship, but this latter we shall not consider here.

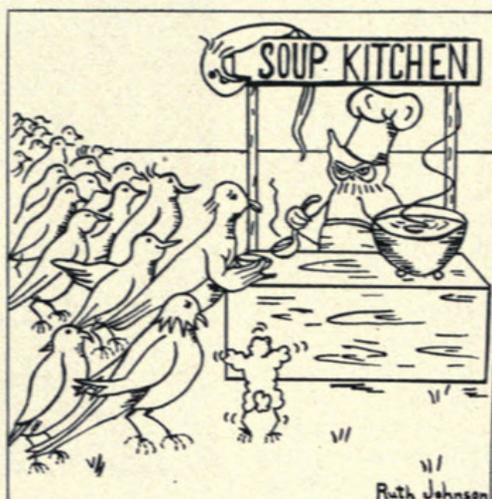
Ordinarily this infantile begging behavior is discontinued shortly after the young birds leave the nest and become able to feed themselves. In a state of nature, observations indicate that this change is probably hastened in part by the young birds themselves, who come to avoid having food thrust down their gullets and prefer to pick up the food for themselves, and in part by the waning interest of the parents in the young, which confers an advantage on those young who early become self-supporting.

## CASE OF RETARDED DEVELOPMENT

Certain observations made from time to time have indicated that, though the age at which young birds change from infantile begging for food to self-supporting independence is fixed by instinct, certain external factors, notably the amount of care the young have received, can affect the age at which this change occurs. Indeed, there is a record of a young cedar waxwing raised by hand, who never learned to feed himself.

When I secured a brood of four young loggerhead shrikes, or butcher birds, the material was available to conduct a controlled experiment. The young birds were

raised together by hand to the stage at which they were ready to begin to pick up things, to feed themselves, and to begin to abandon their infantile behavior of begging for food. This was when they were 21 days old. They were then divided into two lots and housed separately. One couple had a supply of food kept in front of them, and hand feeding was gradually discontinued and stopped as soon as possible. At the age of 28 days they fed themselves well,



though they still begged freely when I approached. By the time they were 39 days old they begged rarely, and after 45 days they were not seen to beg.

The other two birds had no free food available at any time and were fed completely by hand, the food being placed in their mouths. At the age of 28 days they had made no effort to feed themselves. By the time they were 53 days old they made efforts to feed themselves by trying to peck the food from the fingers instead of having it thrust into their mouths. They evidently would have changed quickly to independent self-feeding and abandoned their infantile begging behavior, but hand-feeding was continued. At the age of seven and one-half months, when the experiment was discontinued, though these birds were capable of feeding themselves, as was seen when food was dropped accidentally on the floor of their cage, they still begged for food from their human foster-parent.

## OBJECT LESSON FOR PARENTS

The four birds used in this experiment were nest-mates, with similar hereditary and early environment. The birds in the lot that received only enough care to insure proper development became self-feeding and independent and lost their infantile begging behavior when they were about a month and a half old. The birds of the other lot, which received an excessive amount of care and were hand-fed without being allowed to develop the behavior that would have made them independent, retained the infantile behavior pattern of begging until the end of the experiment. They were then

seven and one-half months old, and their nest-mates, under a different set of conditions, had lost their infantile behavior six months earlier.

Thus in some birds it appears that excessive care can be a conditioning factor. It can delay the loss of infantile behavior and the acquiring of normal independence. Though the young shrikes instinctively tried to develop their independent behavior, when this was not possible they continued their dependent conditioned behavior.

## STAFF NOTES

At the annual meeting of the Ecological Society of America in New York, Chief Curator of Zoology **Karl P. Schmidt** was elected to the editorial board of the Society's journal, *Ecology*. . . **Rupert L. Wenzel**, Assistant Curator of Insects, recently studied insect collections in the principal eastern museums. . . **Donald Collier**, Curator of South American Ethnology and Archaeology, gave an illustrated talk on Peru for the Jackson Park Camera Club. . . **Paul G. Dallwig**, Layman Lecturer, has extended his leave until next November. He will then resume lectures for Sunday audiences in the Museum. . . At the recent annual meeting of the Society for the Study of Evolution in New York, **Dr. Theodor Just**, Chief Curator of Botany, spoke on "Fossil Floras of the Southern Hemisphere and Their Bearing on Continental Drift." He was elected secretary of the Society for 1950-52. In New York **Dr. Just** also attended the annual meeting of the Botanical Society of America, where he made a report on the activities of the Committee on Paleobotanical Nomenclature, of which he is chairman. . . Several other members of the Museum staff presented papers at the meeting of the Botanical Society. **Dr. Hugh C. Cutler**, Curator of Economic Botany, spoke on "The Phytogeography of Bolivia." **Dr. Julian A. Steyermark**, Associate Curator of the Herbarium, spoke on "The Phytogeography of Venezuela." He was elected secretary of the Systematic Section of the Botanical Society of America. **Dr. L. H. Tiffany**, Research Associate in Cryptogamic Botany, presided over meetings of the Phycological Society of America and presented several papers. **Dr. Francis Drouet**, Curator of Cryptogamic Botany, attended and conducted research at the New York Botanical Garden. **Donald Richards**, Research Associate in Cryptogamic Botany, attended meetings of the American Bryological Society. **Dr. José Cuatrecasas**, Curator of Colombian Botany, spoke on "The Phytogeography of Colombia." He was appointed a member of the organizing committee of the Third South American Botanical Congress to be held in Bogotá, Colombia, in 1953.



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