

DISCUSSION

LORENZ'S OBJECTIVE METHOD OF INTERPRETING BIRD BEHAVIOR

To the Editor of 'The Auk':

Lorenz ('Der Kumpan in der Umwelt des Vogels,' *Journ. f. Ornith.*, 83: pt. 2-3, 1935; 'The Companion in the Bird's World,' *Auk*, 54: 245-273, 1937) has recently adapted from Uexkull a school of thought for the interpretation of bird behavior. This work has received favorable notice, and promises to have considerable influence on thought in this field. Any new method for attacking the problems of the study of behavior, helping us to understand it, the origin of behavior and the forces controlling its evolution and operation, is more than welcome, and if it proves more satisfactory than the ideas of the old schools, it supplants them. Let us see if the ideas of Lorenz prove more satisfactory.

The basic unit in this school is the 'releaser.' The releaser is that portion of the object which sends out the stimuli to which the bird responds. The bird does not respond to the object as a whole, but to the releaser only, and the bird has such a pre-ordained organization that it responds only to this one combination of stimuli. The rigidity of this relationship is emphasized by comparing it to the relationship between a key and a combination lock. (Lorenz has often been misquoted as saying that the bird reacts to only one stimulus emanating from the object; rather he says to one releaser, which usually furnishes a simple combination of a few stimuli.)

This sets at naught the vast amount of work of experimental psychologists whose work on animals Lashley reviewed in 1938 ('Experimental Analysis of Instinctive Behavior,' *Psychological Review*, 45: 445-471) and of which he says that, when they first began work, it seemed probable that the exciting stimulus would be found to be simple, but the experiments based on sense privation point to the conclusion that the exciting stimulus in instinctive recognition of mate or young is not mediated exclusively by any one sense modality. Experiments based on varying the properties of the stimulus object point to the conclusion that the instinctive behavior is dependent on a complex of stimuli, and no investigator has found any single property of the stimulus object which cannot be varied within limits without disrupting the pattern. Despite the fact that the probable existence of releasers has not been clearly demonstrated in any cases, the assumption is put forward that all striking color designs and bizzare structural devices in birds find their exclusive use as releasers; and that very complicated structures may function as single releasers.

Are we justified in assuming that any structure whose function we do not know has any function, let alone a very specialized function? One objection which comes at once to mind is the question of mal-adaptions.

It is interesting to examine the factual evidence Lorenz quotes for his releaser concept. The following is the list of the species or groups having releasers mentioned, in 'The Conception of the "Releaser"' section in Lorenz's 'Auk' article (this disregards his data on sea-urchins, spiders, ticks, fish, lizards, cats, dogs, men):

Jackdaw.—Any glistening black dangling object carried by any living creature will cause Jackdaws to attack the living creature. This is the only example given in which the releaser concept seems satisfactory, and here the effects of learning are not considered.

Blue Tit.—(1) Yellow marks on the corners of the mouth of the young release the feeding reaction of the adult. Yet we know that many species of passerine birds will occasionally feed the young of other species (see A. A. Allen, 'The Book of Bird Life,' 1930: Fig. 166, showing Redstart feeding young Robins).

(2) The white cirlet of anal feathers releases the nest-sanitation behavior of the adult. Yet, when nest sanitation is first started, the young have no feathers (I am considering this at greater length elsewhere).

Night Herons.—The erectile crest of Night Herons is said to be used to indicate peacefulness. The later work of Noble, Wurm and Schmidt (Auk, 55: 7-40, 1938) found it to be used in courtship and not as Lorenz stated.

Other birds.—In Shell Parakeet, tits, shrikes, doves, "hosts of other birds," Bullfinch, Bean Goose, and "numerous species of the anatide order" the color patterns of these birds, concealed while they are at rest and displayed at the moment of taking flight are said to be "automatic releasers," eliciting a "flying in pursuit reaction" from others of their species. There is no attempt here to evaluate the extent of learning in this connection. There is also a vast literature devoted to other views on the function of 'banner markings.'

Raven.—Two different poses of this species are cited as releasers, but nothing is said as to what they release.

Four species of Anas.—Various 'releasers' are outlined without saying what they release.

Dabchick.—An alleged releaser is cited, without saying what it releases.

Lorenz includes "intention movements" with releasers, saying there cannot be drawn a sharp separating line. Examples of such movements, which transmit excitation by contagion, are given in some geese and ducks. However, when a bird is about to fly and its movements make this evident, Lorenz's definition of Kumpan seems to put the associate bird as Kumpan.

The mention of symbolic releasing ceremonies and their phylogeny is general, except for the following: "Especially interesting is a certain symbolic movement of the Gannet, in which the bird sitting on the nest site 'pretends' to take building material from the bill of an imaginary mate and to build it into a nest which at the time being does not yet exist."

A bird responds differently to some fellow members of its species at different times. Depending on its functional cycle a bird responds differently to its parents, its nest mates, its social associates, its sex partners, and its young. Lorenz calls its associates different Kumpan-names when they represent different objects (call forth different sets of instinctive actions) in different functional cycles. He lists five main Kumpan: parent-, brother-and-sister-, social-, sex-, and child-Kumpan. Apparently in each Kumpan the social functioning parts of the bird constitute a special set of releasers; it acts as a sort of super-releaser. This unity of responses in each cycle depends in part on imprinting.

In classification one might go further and have a parent-warning-sub-Kumpan and a parent-feeding-sub-Kumpan. Indeed it might be possible to go outside the field of the same species and have a water-Kumpan with subdivisions of water-to-be-avoided-sub-Kumpan and a water-to-be-drunk-sub-Kumpan and a water-to-be-bathed-in-sub-Kumpan. However, its usefulness is doubtful. It is well to remember that Watson in 1914 ('Behavior, An Introduction to Comparative Psychology') called this "absurd terminology."

Imprinting.—This is the process by which instinctive recognition of the fellow member of the species is acquired during the life of the bird. Instinctive acts

cannot be influenced by experience. Imprinting is a unique process which has nothing to do with learning. This savors of identification by definition, and a distinction without a difference; it appears to be conditioning, and Lorenz inclines toward this in his later work.

Lorenz frequently speaks of the phylogeny of behavior. According to his views, bird behavior is made up of instinctive acts and intelligent acts. We find: (1) that the instinctive acts are reflexes, unmodifiable by experience; and (2) that individual variations of an instinct can be disregarded; an example is that every healthy wild hen is in every detail a perfect clucking hen. That is, instinctive acts exist. There is no scope for selection, nor is evolution possible here, not if every hen is a perfect hen. This offers no new line of attack on the problem of the origin of behavior. Perhaps Lorenz's views of the higher type of behavior, intelligent or modifiable behavior, offer a better method. But no! According to Lorenz, intelligent behavior is quite distinct from instinctive behavior, and at certain stages simply supplants it. It has no beginning, it just appears.

Lorenz has buttressed his position by saying that he will prove as dogmatic certain prevailing opinions; that some complicated instinct-training interlacements (behavior patterns) will probably never be solved; that linguistic difficulties in interpreting a man's work are great; that if another observer has not noticed something, he is never entitled to make a negative statement; that he uses only the observations of a few other workers with views similar to his own, in whose works he can read between the lines. In many minor aspects of his thesis we can agree or disagree with him; but if the fundamental basis of his thesis is a sort of spontaneous generation of behavior, is it worth while to examine the evidence on which it rests?

In a world where everything is complex, truth seems to vary, and we know not what to believe; it is pleasant to turn to the master and find a rule of thumb by which to proceed. By his logic we can fit together behavior patterns into series, but they have no bearing on the basic problem. That cannot be solved! We do not need to think. It is perhaps pleasant not to think. The need of something absolute and inflexible to which to cling is inherent in the human race. Witness the ideologies which have been set up in the past and are rampant at the present time.

But progress in thought is not made by accepting ideologies blindly. And still we have the hope that by observation, experimenting and thinking, we can gain insight into the origin of life, and the forces which control it. Otherwise biology has no meaning.

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