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by **N. Bischof**

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On the necessity of "appropriate behavior" on the part of the caregiver. In response to the article by Rajecki et al., I would like to limit myself to commenting on an argument against the ethological theory of attachment. Ethologists assume that infantile motivation in an "expected environmental niche" leads to behavior that optimizes the child's chance of survival. "Expected niches" are those that are similar to the environment in which the species evolved. The authors state that under experimental conditions attachment forms not only to parents, but also to inanimate objects bearing no similarity to conspecifics, and even to objects that severely maltreat the child. According to the authors, this poses a serious problem to ethological theory, since one cannot possibly view these objects as constituting part of an ordinarily expectable environment.

This argument contains a fallacy. Suppose that the objects constituting the "expected environment" of an infant immediately after birth or hatching dif-

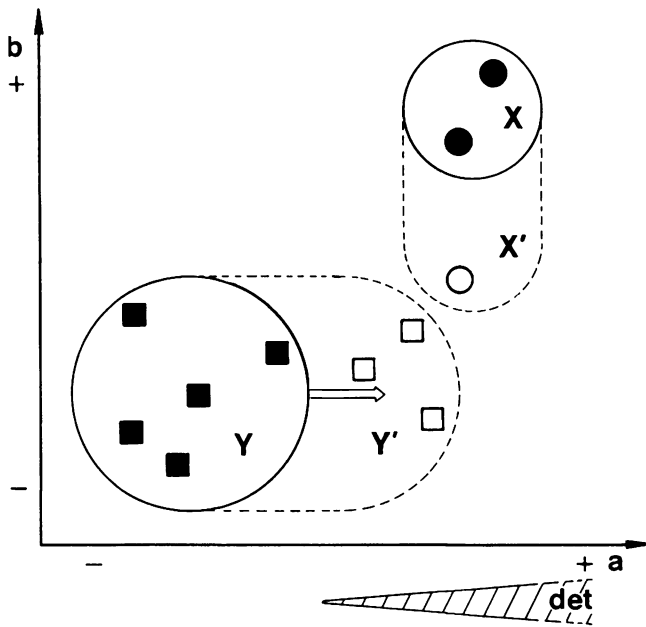


Figure 1 (Bischof). a = average intensity of attention-attracting stimuli emitted by object; b = readiness of object to behave prosocially to infant; X = parents; Y = other objects; X' = "bad" parents; Y' = other objects becoming more conspicuous in later stages of ontogeny; det = detector for object conspicuousness, releasing following-response in an early ontogenetic stage.

fer, among other characteristics, in two dimensions. a and b , where b is the probability with which the infant can expect prosocial behaviors (for example caregiving) on the part of the object, and a refers to the average intensity with which the object attracts the attention of the infant.

We may assume that the "expected" objects fall into two classes (see Figure 1): parents and their possible helpers (Class X), and other objects (Class Y). The infant can only expect prosocial behavior ($b +$) from objects X ; all other objects are at best unconcerned, but they are frequently even hostile and dangerous ($b -$). At the same time it is the objects X which regularly come closer to the newborn than all others and interact with him more, and which thus score highest on the scale of conspicuousness ($a +$).

In order to stay in proximity to prosocial objects, the infant ought to be able to detect them. The initial cues for this detection must be simple enough to be accessible without previous learning. In an "expected niche" in which neither unfamiliar conspecifics, nor other animals, nor inanimate objects are as conspicuous as the parents, a stimulus detector sensitive to high grades of a , as indicated in Figure 1, would be completely sufficient. It would cause the infant to attach to those objects in his early environment that are most efficient in attracting his attention.

Such a mechanism is of course expedient only in an early phase of ontogeny. Discriminating cues in other character dimensions (c , d , etc., not represented in Figure 1), concerning the individual physiognomies of the parents, should become associated with the unconditioned stimulus $a +$ as soon as possible. The older the child, the greater the probability of his encountering unfamiliar objects (Y'), and then the simple detector system in Figure 1 no longer makes correct discriminations. The sensitive period of imprinting, therefore, should be limited to early ontogeny, and this is generally the case.

Precisely when primary detection of potential caregivers is achieved through a mechanism such as that in Figure 1, we find the infant in the laboratory attaching himself to any surrogate, as long as this surrogate fulfills the criterion of predominant conspicuousness. Rajecki et al.'s imputation that the ethological theorist is forced to conclude that non-specific objects belong to the "expected environment" of the species is positively incomprehensible. Exactly the opposite is the case: had styrofoam cubes, toy trains, flashing lights, or even potential predators been regularly present in the intimate environment of early childhood in the course of evolution, then natural selection would have presented a mechanism of the kind discussed

from ever developing – the danger of a child's following an object prone to neglect or kill him would have been too great.

What about abusive objects? If they belong to class Y (e.g. predators), we cannot expect the imprinting mechanism to be able to react to them in an adequate way. If such objects do manage to approach the child so as to activate the detectors of the attachment system, the child is done for anyway. Whatever measures natural selection has produced to counteract infant predation, they must prevent predators from lingering in the lower-right quadrant (Y') of Figure 1. That is, predators must be chased or lured away, or the infants must be concealed. Since this is what the attachment system can be expected to presuppose, anecdotal reports of occasional imprinting to predators in captivity do not pose any theoretical problem.

If abusive objects are pathological parents (X'), this again would have hardly been able to force the evolution of the detector system in another direction. Parental maltreatment no doubt reduces the child's chances for survival, but the child normally has no alternative; there is no one to whom he can run and be better cared for. In extraordinary cases the helpful she-wolf might turn up to nurse Romulus and Remus, but extraordinary cases have no effect on evolution. It is therefore always best to stay with one's own parents, who are generally at least *somewhat* care-oriented and not quite as uninhibited in inflicting harm as strangers.

Thus, Lamb's theory, that infantile attachment presupposes "appropriate behavior" of the parents, may be based on sensible arguments elsewhere, but it is not implied in the context of ethological theorizing. If this assumption appears to be invalidated by empirical results, Lamb should certainly not attribute the error to his ethological position.

BBS Associateship Genealogy

Associates are listed alphabetically and numbered sequentially. Numerals to the right of an associate's entry designate his or her nominator(s).

Explanation of letter codes:

- E: First generation, invited by Editor
- A: Article accepted for publication in BBS
- R: Refereed for BBS
- C: Commentary accepted for publication
- O: *Ex officio*

Note: (i) The coded entries are not meant to be an exhaustive list of all capacities in which an associate has served in 1978, but merely to indicate the source of his associateship. (ii) This list only corresponds to the associateship as of June 30, 1978. Since then there have been two hundred new associates. New associates' names will appear in an updated list appearing annually.

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