

# Book News

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**Self-Awareness in Domesticated Animals,** D.G.M. Wood-Gush, M. Dawkins, R. Ewbank, eds. (The Universities Federation for Animal Welfare, Hertfordshire, England, 1981). This volume, the proceedings of a workshop on animal awareness, held at Keble College, Oxford, in July of 1980 contains a selection of valuable papers and discussion that deal with such topics as pain sensation and pain reactions in animals, bodily awareness, awareness and self-awareness, emotions and display of emotions, and the problem of distinguishing awareness from responsiveness. This last topic was the subject of the opening presentation by D.R. Griffin, who emphasized that further studies

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of animal communication might serve as a "window" to animals' thoughts, and also cautioned that the possibility of self-awareness in social insects should not be ruled out simply because their behavior is often genetically determined and relatively stereotypic. However, the correlation between social complexity and self-consciousness may be more tenuous than the correlation between neural (especially cortical) complexity and consciousness.

Griffin concludes, "If we allow a considerable awareness of animal's environment and its companions, but deny it any self-awareness whatsoever, we are forced to postulate that the abundant information that impinges on its brain from its own body is barred in some special way from reaching its awareness. Such a limitation seems both implausible and maladaptive, for information about itself is at least as important to an animal as information about anything else, if not more so."

The philosopher S.L.R. Clark observed that far too many students of animal behavior equate *predictable* behavior with lack of *feeling* and that behavior is only possible for a creature with some inward dimensions, with its own real perception of the world (*umwelt*): "Within that framework we do not see merely material motions but, rather, the embodiment of character and feeling in a material mode." Likewise, Clark was critical of the typical ethologist's mechanistic view of interpreting virtually all behavior as *stereotyped response* rather than as possibly *intentional* or anticipatory action, and raised the provocative question of whether ethologists, as a group, have a sufficiently strong self-concept of their work, since they rarely take account of the long-term consequences of what they do to animals that can sense, feel, respond, and suffer. He was also critical of Cartesian philosophy, which accepts the concept of self and mind in humans, yet rejects the possibility of mind and a sense of self in animals, since the existence of such cannot be proved or even empirically tested. He suggested that the concept of panpsy-

chism should be seriously entertained, arguing that, since it is present now, it must also have been extant from the beginning.

Unfortunately, neither Clark nor any of the other contributors to the symposium explored the differences between intelligence and consciousness or self-awareness and sapience and sentience. Also, a potentially more fruitful debate might have been generated from discussions of play behavior and creativity in animals, as well as what we know about fear and anxiety (conditioned emotional reactions) in animals. A discussion of this latter topic would have particularly enriched and extended D. Bowsher's paper on pain sensations and reactions. His paper concluded that animals' perception of *chronic* pain may be analogous to that in humans with pre-frontal cortical lesions, *i.e.*, that "it may or may not be consciously perceived, but suffering in connection with it is extremely unlikely." However, on the basis of neurological evidence, Bowsher is convinced that animals certainly feel *acute* pain and react to it in the same way as humans.

Wood-Gush defined self-awareness as the animal's ability to abstract and form a conceptual framework of its environment so that it can perceive itself and its actions in relation to that environment. The paper by G. Woodruff clearly demonstrated such self-awareness, in his studies with David Premack on chimpanzees. In a series of ingenious tests, they demonstrated that these primates are capable of making causal inferences ("knife cuts apple") and of elaborating abstract mathematical concepts such as number and proportion, that they take into account the condition & demeanor of the recipient in formulating communicative behavior, and that they can be shown to have intentionality, as when they choose to communicate accurate or false (*i.e.*, deceptive) information. Other tests demonstrated that chimpanzees can observe another's behavior and analyze and interpret it discriminately, an ability that supports Humphrey's concept of a "natural psychology" in social

animals.

N.K. Humphrey proposed that the capacity for having emotions has evolved hand-in-hand with the capacity to express them. This sort of contingency correlation postulates that feelings represent an evolutionary adaptation to social life. Humphrey also suggests that any animal that lives in a complex social group needs to be a "natural psychologist," with the ability to anticipate, stimulate, and model the behavior and feelings of other group members. In sum, social animals must have a sense of "1-ness," of both self and other.

Yet sociability and behavioral complexity need not be prerequisites for self-awareness. D.M. Vowles suggested that even "body awareness forms a rudimentary mechanism for self-consciousness, consciousness of the outside world, and perhaps purposes and intentions must clearly affect the way we interpret animal behavior."

Altruistic behavior may be an indicator of an animal's ability to sense what another is feeling. Such fellow-feeling, which may reflect empathy and compassion, has been observed in social animals such as elephants, dolphins, wolves, and chimpanzees. The greater the degree of self-awareness, the greater may be the degree of other-awareness, which in man (as in animals socialized to humans or other species), may be extended to other species, as trans-species altruism.

R. Mugford presented case-histories of dogs with behavior "problems" (such as sympathy lameness) who had learned to predict their owner's intentions and actually manipulated their owners. Mugford concluded that this was evidence of self-awareness; he argued "if one can anticipate certain of one's needs (say, for food, shelter, companionship, etc.) and manipulate matters so that the needs are fulfilled, then one is self-aware."

However, G. Thines, in discussion, contended that experiments to demonstrate self-awareness in animals are impossible, because the question is philosophical rather than empirical. But the general consensus of the workshop par-

ticipants was that the question of self-awareness provides a legitimate challenge to the standard methodology and presuppositions of conventional biology and that there are many questions that might be fruitfully investigated. For example, To what extent are animals that are self-aware also aware of what is going on in another's mind? To what degree can animals anticipate future events, in relation to delayed gratification, thus indicating self-awareness, if not enlightened self-interest? Do animals (such as farm animals raised in confinement) suffer when they are deprived of things they have never experienced? Certainly the existence of self-awareness in animals raises many questions pertaining to their welfare. For example, the ability of animals to experience chronic pain, anxiety, or frustration (for example, as a result of preventing them from performing some innate behavior), compel us to consider the moral and ethical dimensions of the scientific question of animal awareness.

Perhaps the best conclusion to this review is a quotation from Clark's paper:

*In brief, there is reason to think, within the framework of educated assessment and empathy, that animals who live in social groups, with relatively long lives and a need to resist temptation in an environment where purely stereotyped behaviour will be maladaptive, will have some degree of self-awareness. Awareness itself does not have any clear evolutionary rationale, but self-awareness does. It does not "pay" such aware creatures as do not need to live long and varied lives if they are to leave genetic replicas to have any self-awareness. It does "pay" aware creatures that need to regulate their actions in accordance with relatively long-term goals and under the eyes of their fellows. Accordingly, some non-human animals are self-aware.*

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