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Taking Anthropomorphism and Anecdotes Seriously

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This book results from a desire to discuss what are often depicted as twin demons: anthropomorphism and anecdotalism. Although positions against the use of anthropomorphism and anecdotes have seemed an institutionalized scientific doctrine, attitudes toward these approaches to understanding animals are changing within the scientific community. We, as editors, wish to provide a forum for the discussion of scientists' often divergent, yet arguably scientific, views toward anthropomorphism and anecdotes, and to that end we asked researchers studying animals, as well as those studying anthropomorphism and philosophy of science, to present their views. The result is a cornucopia of ideas about the nature of humans, other animals, and the relation between the two.

Because the scientific attitude toward anthropomorphism and anecdotes in the interpretation of animals is profoundly ambivalent, we believe that the topic should be discussed as openly as possible. We ourselves are divided in our attitudes toward anthropomorphism and anecdotal evidence, ranging among mentalism, pragmatic anthropomorphism, and philosophical behaviorism (cf., e.g., Mitchell, 1992, 1993c; Mitchell & Hamm, in press; Miles, this volume; Thompson, 1994), with the result that, as editors, we have tried not to interfere with authors' viewpoints. Each author presents his or her own thoughtful, well-argued personal vision. Not surprisingly, beliefs that one author

takes for granted are criticized by another; claims elaborated by one author may be briefly critiqued by another. This approach does not lead to uniformity in perspective; quite the contrary. We ourselves were astounded at the range and complexity of the issues when examined both within and between chapters. This book, then, should not be looked upon as the final answer to an old problem. Rather, it should be used as a means of thinking about how we interpret animals, including ourselves, by examining arguments, concepts, history, and science. To that end, the book takes the reader on a journey of ideas.

Although anthropomorphism and anecdotes have been used throughout the history of science (Agassi, 1973; Guthrie, 1993; Mitchell, 1996), the methodically anthropomorphic analysis of anecdotes of animals had its heyday with Darwin's and Romanes's attempts to explain human psychology through evolution from nonhuman psychology. Knoll examines this fascinating period by relating scientific ideas to cultural conventions, suggesting that evolutionary theory was succeeded by anthropomorphic attitudes toward animals. Although Darwin's theory predicts psychological continuity between humans and great apes (and perhaps other primates), Darwin and Romanes, in their attempts to provide grand support for the theory, sought and found evidence of psychological continuity between humans and all animals, most particularly dogs! Whereas English sensibilities revolted at the idea of being evolved from a creature such as an ape, they felt solace in kinship with the devoted and faithful family dog. Taking Knoll's ideas one step further by depicting the different paths taken by Western and Japanese comparative psychologists and ethologists, Asquith elaborates the argument that what is labelled "anthropomorphism" depends upon cultural and historical conventions about the place of humans in nature. In writing so, she argues against her former position (Asquith, 1984) that anthropomorphic language about animals is metaphorically related to language distinctly about humans. We use "anthropomorphic" language to characterize animal behavior that is like human behavior in certain salient ways. Because we do not know whether the implications of "anthropomorphic" language—e.g., the intentional agency implied in saying that A "threatens" B—are true of animals or even of all humans so depicted, the relationship between the language and the literal meaning is ambiguous rather than metaphorical.

Although some researchers (e.g., Kennedy, 1992) believe that one should strive for more neutral descriptions of animal behavior so as to avoid anthropomorphism's often uncertain implications, Cenami Spada argues that the notion that one can distinguish anthropomorphic from neutral descriptions a priori is fallacious because it presumes an "amor-

phic” perspective—paradoxically, a perspective from no particular point of view—by which to determine which description is more accurate. Rather, recognition of some description as anthropomorphic occurs only *after* one has made presuppositions of what is the correct description, and these presuppositions can themselves be anthropomorphic. For example, behaviorists have presumed that human language is subject to the same laws of learning as other behaviors, and therefore that animals can learn language. But if we presume that language is not subject to the same laws of learning as other behaviors, we see that the behaviorists have made an anthropomorphic extrapolation from humans to nonhumans. Cenami Spada argues that the presumption that animals are machines—mechanomorphism (Caporael, 1986)—is itself just as much an unverified assumption as those designated anthropomorphic.

Cenami Spada characterizes anthropomorphism as nothing more than the residue of assumptions about humans applied to animals. Guthrie believes that anthropomorphism is a more directed expectation, an “involuntary perceptual strategy” by which humans guess or expect (unconsciously) that ambiguous or significant stimuli have a humanlike or human cause or form. Although this expectation can be supported or changed by empirical investigation, it appears spontaneously in all humans because other humans and their activities are so influential in our daily experience. Similarly, animism is present in humans and other animals because other living beings are so important in their lives. Guthrie argues against the ideas that anthropomorphism derives from the comfort it gives us in seeing ourselves everywhere, or by extrapolation from the familiarity we have of ourselves, by pointing out that (among other things) anthropomorphic demons provide little comfort and our self-knowledge is not very deep. Caporael and Heyes offer three theories of anthropomorphism—as a cognitive default (similar to Guthrie’s “perceptual strategy”), as a system for coordinating interaction which overlaps across species (similar to Guthrie’s “animism”), and as a means of making prevalent certain values toward people and other animals. However, the first two theories seem inadequate—we do not know the parameters of the proposed default mechanism, and anthropomorphic interpretations are often notoriously bad predictors of nonhuman *and* human behavior and therefore unlikely to be useful for coordination between species. In their view, anthropomorphism is used because it transforms our relation to other organisms by talking about them as we do about “other” people.

Gallup, Marino, and Eddy presume, contrary to Guthrie and Caporael and Heyes, that we *do* usefully model the mental states of

other organisms based on knowledge of our own mental states. Mental state attribution is, therefore, a special case of anthropomorphism based on familiarity with one's mind. In their view, people constantly transform their behavior to take into account psychological deficiencies in other people and in animals, and other animals do the same—more specifically, great apes do. Gallup et al. interpret the evidence to indicate that chimpanzees understand humans and other chimps by attributing mental states to them. Povinelli reflects on the difficulties posed when one assumes that apes and humans use their own mental states to understand those of others. Not only are different understandings of one's own mental states accessible to humans during their development, but members of diverse species may have understandings of their own mental states which are widely divergent from those of humans.

For many researchers, any psychological characterization of non-humans is simply unverifiable anthropomorphism. In contrast, Lehman posits that the *failure* to characterize an animal as having the same sort of psychological characterization as a human when the evidence warrants it is a form of anthropomorphism. Lehman argues against the private episode view of mental states, proposing that this view represents an inaccurate view of the nature of perception, and proposes that we can observe mental states in animals just as we observe color or hairiness in them. Russell disagrees, arguing that observational definitions which link psychological states to observable behavior should not be mistaken for the name of the behavior (Cenami Spada presents a similar argument). For example, the term "pain" used in the description of an animal's behavior is not used as a simple referent, but instead organizes the animal's behavior to make it explicable from a particular point of view, a point of view dependent upon the value we place on the animal (as Caporaël and Heyes also argue). Russell contends that any description of animal or human behavior depends upon some system of description or frame of reference which is inherently anthropomorphic in that it is a system or frame posited by humans.

Purposiveness, intentionality, cognition, and consciousness are all terms which, when applied to animals, are sometimes depicted as unscientific because they are reputed to be unobservable. Yet, as Rollin points out, the idea that psychological attributions are unscientific because scientists cannot accept unobservables is belied by the fact that physicists, those premier scientists, commonly postulate unobservables and seem to do just fine. Indeed, Millikan notes that some form of purposiveness is necessary if we are to have behavioral description at all. However, we need to distinguish such biological purposiveness from intentional purposes, which are a special form of biological purpose.

Millikan distinguishes necessary conditions for intentional purposes, and further proposes that there can be intentional, cognized purposes which are unlike the kind that humans have, so that attributing intentionality to animals need not be viewed as anthropomorphism at all. Beer elaborates by examining the problems encountered when the different interpretations we apply in our understanding of human intentionality are applied to nonhumans, either metaphorically (as in socio-biology) or literally (as in depicting animal behavior). In contrast to Millikan, Beer believes that our understanding of the place of intentions in animal behavior is uncomfortably vague at present.

The use of anecdotes to interpret animal psychology is commonly viewed as a part of any anthropomorphic method, although the two are not inherently tied. In the context of comparative psychology, the term "anecdote" usually refers to a description of a unique (or infrequent) behavior in a narrative, although at times it also refers to any narrative description of behavior. Rollin argues that the method of anthropomorphic analysis of anecdotes is a reasonable source of knowledge about animal psychology if the interpretation has plausibility, which itself depends upon common sense and background knowledge. Whereas Rollin trusts the psychologically rich accounts of animal behavior by people who work closely with animals, such as farmers and zoo keepers, Byrne puts the accounts of primate deception by primatologists to the test. He combines the use of plausibility, common sense, and background knowledge in his analysis and emphasizes that, although it is plausible that many primate deceptions arise from reinforcement contingencies, for other deceptions this interpretation seems *implausible* and cognitive interpretations more plausible and therefore more accurate. By contrast, Mitchell argues, using the analogy from courtroom testimony, that plausibility presupposes coherence with a particular story about evidence, which results in at least three problems: two different stories can be equally plausible given the evidence, coherence of evidence within a story rather than evidence per se is taken as indicating truth, and stories often make presumptions which are simply accepted without being recognized as assumptions. Although implausibility may allow one to argue that behavior does not cohere with a given story, as Byrne and others (e.g., Morris, 1986) suggest, plausibility does not guarantee accuracy.

When evidence is found to be implausible within a theoretical story, theorists frequently defend their ideas by positing problems in the methodology or observational techniques by which the evidence was obtained, as Swartz and Evans show (see also Collins & Pinch, 1993). Adequate methodology is clearly important, but most researchers know

that no methodology is perfect or produces data which are free from all possible alternative interpretations. Silverman argues that the methods employed to make inferences about animal psychology may be as varied as the concerns of the observer. For example, if one is concerned about avoiding being bitten by a dog, one would more likely choose to use any evidence that would indicate an impending bite than if one is concerned about the sorts of circumstances and behaviors that usually indicate biting by dogs. Independent of de Waal's (1991) similar analysis, Silverman depicts the different research methods— anecdotes, quantitative analysis, ecological experiment, and formal experiment—that are used to make inferences to animal mind, and argues that these different methods serve different ends and demand different criteria. Consequently, the anecdotes which one may find useful in detecting patterns in behavior are not appropriate as evidence in supporting formal scientific theories about psychological mechanisms or processes. Similarly, the anthropomorphism we use to understand a pet or caged animal may not be appropriate for controlling that animal's behavior.

Indeed, increased knowledge of animal behavior per se may effect complex psychological interpretation. As a researcher who has studied primates as well as cephalopods, Moynihan finds anthropomorphism, anecdotes, and storytelling inevitable if one wants to study *any* animal's behavior, regardless of how similar these animals are to humans. Perhaps some self-selection is going on here, as Herzog and Galvin suggest that an interest in the psychological experience of non-human animals may have in fact led many ethologists to study animal behavior in the first place. Moynihan describes his own observations and conjectures concerning the remarkable behavior patterns of octopus and squid, and concludes that it is most reasonable to believe that these animals know what they are doing and consciously manipulate their performances to influence others. Similar assumptions are made concerning primate behavior based on theoretical beliefs and methodological practices, and, as with cephalopods, their behavior certainly coheres with this view. Quiatt depicts the influences of evolutionary theorizing about individual selection which depicts animals as agents acting to maximize fitness. This theorizing demanded observation of the behavioral "strategies" of individual organisms, leading to the intensive study of individual animals in focal animal sampling. But the understanding of individual animal's behaviors led researchers to experience the world *as if* from that animal's perspective. Quiatt depicts this experiencing, this perspectival shift, as *managed* by researchers, rather than literally experienced, and believes that its *being* managed is important if observers are to gain the kind of information they need to evaluate

individual selection theories. Whether or not the assumption of conscious deliberation and reflective thought presumed by primatologists is accurate awaits empirical investigation.

Although primatologists may be accused of presuming that primate behavior indicates a superior psychology when compared with that of other animals even when evidence is in short supply, undergraduates provide a more ambiguous understanding of nonhuman psychology. When undergraduates are asked to compare the psychological capacities of animals for pain, intelligence, self-awareness, etc., directly to those of humans, Herzog and Galvin, as well as Gallup, Marino and Eddy, found that primates, dogs, cats, and dolphins tend to be viewed as far more similar to humans than are other species such as pigs, elephants, birds, and insects, but all animals are viewed as having psychological capacities to an extent less than that found in humans (see also Nakajima, 1992). On the other hand, Mitchell found that, when provided with a story in which an animal exhibits behaviors indicative of jealousy or hiding feelings, undergraduates make few distinctions in their psychological characterizations of humans, children, chimps, monkeys, dogs, bears, elephants, and otters. Apparently the psychological characterizations students have of mammals change when they are presented with behavior indicative of a complex psychology.

The initiation of renewed interest in the empirical investigation of animal consciousness is rightfully credited to Griffin (1976), but as Burghardt recognizes there exists an earlier tradition of interest starting with Romanes and continuing with von Uexküll and phenomenologists such as Merleau-Ponty. Even within this tradition, it is unclear how one is to investigate consciousness, let alone conscious deliberation, in animals. Burghardt calls for just such an investigation, proposing that understanding the private experience of others be added to the traditional four aims of ethological endeavors—proximate causation, function, development, and evolution. He urges that we begin the study of animal consciousness using any methods available—including anthropomorphism, anecdotes, and empathy—but that we be critical in our interpretations, emphasizing plausibility and empirical investigation of predictions. Burghardt's research method has in part been used by others, with contradictory results as to the adequacy of the methodology. Shapiro follows phenomenology in his reliance in part on a kinesthetic empathy to understand his dog, a method clearly anthropomorphic in its reliance on reflection about an individual human's bodily response to dog behavior. But Shapiro also uses knowledge of dogs and other canids, of American attitudes toward dogs, and of the dog's individual development along with an acute and observant eye to pro-

duce a picture of this dog's experience of his world which most dog owners and researchers would find plausible (although see Caporael & Heyes, this volume). By contrast, in the study of self-consciousness in animals using self-directed responses to mirrors as evidence, Swartz and Evans show that, rather than leading to a coherent understanding of animal self-consciousness, anthropomorphism and anecdotalism have been used contradictorily both to support theoretical formulations independent of any direct evidence and to deny evidence against these theoretical formulations. Their account of their difficulties defending evidence and a point of view different from that of the mainstream suggests that the *critical* anthropomorphism and accumulation of anecdotes espoused by Burghardt may be difficult for scientists to achieve.

Given Griffin's (1976, 1984) strong expectation that conscious thought of some sort causes complex behavior in most animals, it is not surprising that his view seems often to be singled out for parody by opponents (such as Davis). Bekoff and Allen examine the criticism and support that the views and research of Griffin and his associates have received, and propose that much of the criticism directed toward them seems based on untested presuppositions rather than on unbiased, scientific evaluation of evidence. Although Bekoff and Allen support the research program of cognitive ethology, they are less sanguine than Burghardt about success in the study of animal consciousness. Davis portrays an even gloomier picture of Griffin's concerns about consciousness, and objects to the presumption that conscious thought influences animal behavior and even human behavior. He posits that behavior is, in most if not all cases, amenable to a description which precludes thought as a cause. Although not completely averse to the idea that thought can cause behavior, Davis suggests that we make sure that our anthropomorphic folk psychological beliefs (e.g., that thought causes behavior) are accurate for humans before we extrapolate them to other species. He proposes that, until then, we employ the methods used to study human cognition. He believes these anthropomorphic methods produce replicable evidence and, in his view, reasonable understandings of the mechanisms which control both human and animal behavior. Parker takes an even bolder stand: that the methods used to research cognitive development in humans be directly applied to study psychological development in nonhumans, and that the developmental sequence observed in human ontogeny be applied to primate evolution. Parker supports these applications by the fact that both evolutionary and ontogenetic advances are epigenetic, deriving from previous stages or abilities, and argues that by this technique we can look for evidence of differences between species and chart the evolution of ontogeny.

Language is often viewed as a bugbear for any cross-species comparisons, in that language is believed to be a species-specific behavioral propensity which bears no comparison with the communication systems of other species. Programs orchestrated to teach nonhumans language are objected to as fraught with unverified anthropomorphic inference and description. Miles argues that researchers studying sign-use in apes are in a paradoxical situation—the ape language research paradigm started from an interest in finding out what would happen if apes were raised in a human environment and treated as much as possible as human children are treated, yet researchers are required to abjure anthropomorphic interpretation of their ape subjects! Miles details the different perspectives various ape language researchers use to understand their subjects, and the special problems these researchers experience as they try (or fail to try) to walk the line between anthropomorphism (real and imagined) and the “objectivity” their critics crave. In contrast, research on language in non-ape species does not start by immersing animals as children in a human environment, but rather uses discrimination learning techniques to teach animals behaviors functionally similar to those of humans. Schusterman and Gisinger object to the assumption that results of such studies with dolphins and sea lions should employ terms based on human language, such as syntax, reference and meaning, and demonstrate that language-like behaviors of these animals are less consistent with a linguistic interpretation than with a behaviorist analysis derived from equivalence relations. Paradoxically, their redescription suggests that many aspects of human language learning are also consistent with this analysis! By contrast with either animal language approach, Kiriazis and Slobodchikoff suggest that scientists should avoid anthropocentric and behaviorist assumptions and instead hypothesize that animal communication systems are remarkably complex in relation to their ecological needs, perhaps comparable to human language, in order to discover how complex they might be.

These various perspectives indicate that the issues of anthropomorphism and anecdotalism are not self-contained, but have ramifications for our understanding of psychology, the nature and methods of scientific enquiry and theory building, ethics, and human nature, as well as the nature of nonhuman organisms. The reader is invited to think through his or her own perspective by reflecting on the often contradictory points of view these observers of science portray.