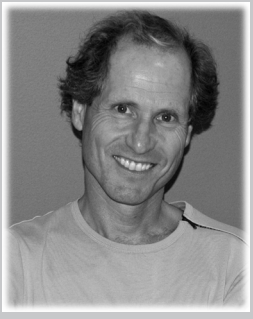

Children, Nature and Moral Development

Peter H. Kahn

Think of a dog. Kick one, and by most accounts it feels pain. Kick a boulder, and by most accounts only your foot will hurt. It would appear, then, that the dog's sentiency – its capability to feel pain – establishes some form of human obligation such that, for example, one cannot with moral impunity bash open the skulls of domestic animals for personal enjoyment. Indeed, such sentiency grounds various philosophical theories of animal rights. For example, Regan (1986) argues that '[p]ain is pain wheresoever it occurs. If your neighbor's causing you pain is wrong because of the pain that is caused, we cannot rationally ignore or dismiss the moral relevance of the pain your dog feels' (p. 33).

Yet how is it that children even come to care about the sentiency of animals? In a year-long study in a preschool setting, Myers (1998) focused on 3-6-year-old-children's relationships with a wide variety animals, including a dog, turtles, a guinea pig, goldfish, doves, ferrets, pythons, a spider monkey, bugs, and squirrels. Based on his observations, field notes, interviews, and video-taped sessions, Myers proposes that young children begin to understand that animals display four properties that remain constant across many different interactions: *agency* (a dog decides to eat and acts accordingly), *affectivity* (a dog appears to enjoy playing with the child), *coherence* (a dog is able to coordinate its movements in response to the child's actions), and *continuity* (the dog's repeated interactions become regularized into a relationship

with the child). Such understandings make it possible for children to recognize that animals have their own subjective states and can have interests in interacting with the child ('my dog wants to play with me'). In Myers' (1998) view, 'animals appear to be optimally discrepant social others by the time of early childhood, offering just the right amount of similarity to and difference from the human pattern and other animal patterns to engage the child. Crucially, animals are social others…because they display the hallmarks of being truly subjective others' (p. 10).

Because children come to understand an animal as a social other, animals can become a source of companionship and support. For example, Covert, Whirren, Keith, and Nelson (1985) found that 75% of the children in their study between ages ten and fourteen said that they turned to their pets when they were upset. More generally, Melson (2000) writes in her account of animals in the lives of children that one 'of the most important yet unrecognized functions of pets – from dogs to goldfish – for children may be their *thereness*…This constant availability may be a major reason why many children bestow the honorific 'my best friend' on their pets…Their animate, responsive proximity makes children feel less alone in a way that toys and games, television or video, even interactive media, cannot' (p. 59).

Children's understanding an animal as a social other also appears to lead at least some children to accord moral standing to animals. One four-year old girl in Myers (1998) study, for example, said that it is wrong to squish a spider 'because it has to have its freedom' (p. 147). Myers also found that preschool children frequently expressed moral sensitivity to harms to animals. For example, in one field note entry, Myers recorded the language two children used in attributing animal emotion and desire as the reason for why a turtle put its head back in its shell after a child touched its tail: 'Maybe…Cause he's scared…. [Another child then says]: Maybe he doesn't want us to do that.'

Moral dimensions of children's relationships with animals have emerged as well in the therapeutic literature. For example, Katcher and Wilkins (1993, 1998, 2000) have engaged in over a decade of work with children diagnosed with autism, developmental disorder, attention-deficit hyperactivity disorder, conduct disorder, and oppositional-defiant disorder, structuring interventions around children's interactions with animals. Katcher and Wilkins found that such children persisted in learning the skills and information necessary for them to handle the animals. Moreover, through such interactions with animals, these children also demonstrated an increase in attention span, a decrease in hostile and aggressive behavior, and an increase in cooperative behavior. Indeed, the skill and care these children displayed in handling and caring for the animals led visitors frequently to ask, 'Why are these children in residential treatment?' One part of an explanation may

be that animals, in the words of Myers (1998), 'pose less potential [than humans] for deceit, competition, manipulation, betrayal, and rejection' (p. 115). Katcher (2002), for example, reports that when children were bitten by small rodents (as they frequently were) they 'explained the biting as defensive: "He was frightened," "I held him too tightly," "I reached in the cage too quickly" '(p. 182). According to Katcher (2002), these children also 'accepted the authority of the zoo instructors as legitimate and not imposed by force or institutional control' (p. 185).

Wildness and Human Flourishing

Some scholars have not only focused on the physical and psychological benefits of connection to nature, but emphasized that humans came of age in the company of wildness – wild animals, wild landscapes – and that this connection to wildness still comprises a fundamental human need.

Shepard (1978, 1995, 1996, 1998) has been one of the strongest proponents of this view. For example, Shepard (1998) writes that the transformation of societies from hunter/gatherer to agrarian took place over the past twelve thousand years, which is insignificant 'in terms of human history that began with the appearance of Homo sapiens some four hundred thousand years ago, our genus, Homo, at two million years, and our family, Hominidae, six million years ago' (p. 81). Wild animals, Shepard (1996) says, were among the first objects of classificatory thinking, and that 'the human species emerged enacting, dreaming, and thinking [wild] animals and cannot be fully itself without them' (p. 4). While Shepard acknowledges the research discussed earlier that shows the physical and psychological benefits of interacting with companion animals (such as dogs and cats), it is a grudging acceptance. For in Shepard's (1996) view, domestic animals are 'biological slaves who cringe and fawn or perform' as we wish, and 'are not a glorious bonus on life; rather they are compensations for something desperately missing,' 'vestiges and fragments from a time of deep human respect for animals, whose abundance dazzled us in their many renditions of life' (p. 151).

Turner (1996), like Shepard, offers passion and on occasion biting words for the loss of

wildness and our acceptance of poor substitutes:

> We visit the zoo or Sea World to see wild animals, but they have been tamed, rendered dependent, obedient. We learn nothing of their essential life in nature. We do not see them hunt or gather food. We do not see them mate. We do not see them interact with other species. We do not see them interact with their habitat. Their numbers and their movements are determined by human artifice. We see them controlled. We see them trained. In most cases they are as docile, apathetic, and bored as the people watching them. If we visit wild animals in sanctuaries, we are protected by buses and Land Rovers and observation towers. We are separated from any direct experience of the wild animals we came to visit. (p. 29)

Turner (1996) also emphasizes wild lands, and defines a place as wild 'when its order is created according to its own principles of organization – when it is self-willed land. Native people usually (though definitely not always) 'fit' that order, influencing it but not controlling it' (p. 112). Moreover, Turner argues that such wild places have 'autonomy' which does not involve a radical separation from others, but 'interconnectedness, elaborate iteration, and feedback' (p. 113) which create the possibility of change and thereby freedom. Thus for Tuner – not unlike for Piaget (1932/1969) and Kohlberg (1984) – autonomy does not involve an 'anything goes' mentality, but self-organization and self-regulation. Autonomy is impeded when adults are coercive – in Turner's case, when adults control land and animals; in Piaget's and Kohlberg's case, when adults coerce children. As Turner says, the 'important point is that whatever kind of autonomy is in question – human freedom, self-willed land, self-ordering systems…all are incompatible with external control' (p. 113). For this reason, Turner argues against most of the activities carried out by environmental organizations, be they by wildlife managers or conservation biologists. Rather, he says:

> We need big wilderness, big natural habitat, not more technological information about big wilderness. Why not work to set aside vast areas where we limit all forms of human influence: no conservation strategies, no designer wilderness, no roads, no trails, no satellite surveillance, no over-flights

> with helicopters, no radio collars, no measuring devices, no photographs, no GPS data…no typographical maps. Let whatever habitat we can preserve go back to its own self-order as much as possible. Let wilderness again become a blank on our maps. (p. 120)

Against this backdrop of 'self-willed land' it becomes clearer how fear of the natural plays an important role in the human experience of the wild. Fear may help us recognize that we are not completely in control, but part of interconnected systems. 'To come upon a grizzly track', Turner (1996) writes, 'is to experience the wild in a most intimate, carnal way, an experience that is marked by gross alterations in attention, perception, body language, body chemistry, and emotion. Which is to say you feel yourself as part of the biological order known as the food chain, perhaps even as part of a meal' (p. 85).

Fear, of course, is only one aspect of the human experience of wildness, but it is worth emphasizing because of the seeming paradox that while people seek to minimize fearful interactions in their lives so as to prosper, in so doing they may impede their own wellbeing. One partial explanation of this paradox may be that fear of the natural is experienced differently than fear of humans or of the human-built environment.

Physiological data bears on this proposition. In a series of studies, Öhman and his colleagues (Öhman, 1979; Öhman, Erixon, & Löfberg, 1975; Öhman, Dimberg, & Öst, 1985) created a version of a Pavlovian conditioning experiment wherein they first conditioned aversive responses by showing participants either fear-relevant natural stimuli (such as snakes and spiders) or neutral stimuli (such as geometric figures) and paired each slide presentation with a mild electric shock. The researchers then presented the same slides ten to forty additional times without the electric shock. Based on measures of participants' skin conductance and heart rate, they thereby assessed the extinction rate of the fear response acquired earlier. Results showed that natural fear-related stimuli were much more resistant to extinction (forgetting) than the neutral stimuli. Similar findings appeared when contrasting snakes and spiders to dangerous human artifacts such as handguns and frayed electrical wires (Cook, Hodes, & Lang, 1986; Hugdahl & Karker, 1981). Similar findings also appeared when participants were presented with subliminal stimuli. For example, Öhman (1986; Öhman & Soares, 1993) modified the above conditioning experiments such that after the learning phase (with the electric shock), participants were presented with the same slides for 15-30 milliseconds (such that the slides could not be consciously recognized) and then immediately 'masked' by a slide of another stimulus. Results showed that the natural fear-related stimuli (snakes and spiders), but not the other

stimuli, could elicit strong aversive physiological responses. (See Ulrich, 1993, for a review of this body of research.)

The proposition that (a) humans distinguish between fear of the natural and human, and (b) that experiencing fear of the natural, within limits, forms part of healthy psychological functioning helped to structure a study by Kahn, Saunders, and Myers (2001) conducted at Brookfield Zoo (outside of Chicago, IL) on children's conceptions of bats. One of the exhibits at the zoo is the 'Australia House': a darkened, cave-like enclosure, about 80 feet long, that people enter and walk through. The exhibit houses Rodrigues fruit bats. One of the most notable features of this exhibit is that there is no barrier between the exhibit animals and the public. Thus, as people walk through the exhibit, they not only look at and hear the bats, but experience their immediate proximity. Indeed, as the bats fly around the mostly darkened enclosure, they at times swoop within inches of the people in the exhibit. In this context, Kahn et al. conducted semi-structured interviews with 120 children across four age groups (6-7 years old, 9-10, 12-13, and 15-16) after the children finished the exhibit. In one set of their findings, results showed that the majority of children felt a sort of fear with bats. For example, children said directly that they were afraid of bats, or believed that the bats could hurt them, or would prefer not to sleep in a place where bats could fly around freely. At the same time, children often seemed to

appreciate such fear in their lives. For example, they preferred that the Australia House remain as it is (and for the zoo not to construct a wire mesh barrier between the bats and humans), or said they felt more alert in the Australia House, or rejected the analogy that their feeling around bats is anything like the feeling they get when walking down a dark city street at night. While, from Turner's perspective, the zoo environment offers an impoverished connection to wildness, it does offer some connection, and to that extent a venue for research on this topic.

Environmental Generational Amnesia

If the human experience of wildness – that involves living in the presence of other self-regulating systems – is still a central human need for human flourishing, it is not a need that is well recognized by modern people. Why not? One explanation is that we, as children, have come of age in an existing environment that is

already degraded, and we use these conditions as the baseline to construct our knowledge of what constitutes a normal reasonably healthy environment. The crux here is with each ensuing generation, the amount of environmental degradation increases; but each generation in its youth takes that degraded condition as the non-degraded condition, as the normal experience. Kahn (1997, 1999, 2002) has called this psychological phenomenon environmental generational amnesia.

Developmental precursors to environmental generation amnesia emerged in Kahn and Friedman's (1995) research on the environmental views and values of economically poor African-American children living in Houston, Texas. Houston is one of the more environmentally polluted cities in the United States. Local oil refineries contribute not only to the city's air pollution, but also to distinct oil smells during many of the days. Local rivers can be thought of as sewage transportation channels more than fresh waterways. Garbage is commonly found alongside the local rivers. In this context, while interviewing 72 children in grades 1, 3, and 5, Kahn and Friedman found that while the children understood in general about the idea of air pollution, water pollution, and garbage, statistically fewer children believed that Houston had any of these problems itself. Such findings support the proposition that children are constructing an environmental baseline of normality in the context of an unhealthy environment.

On many occasions while lecturing in public, Pyle (2002) asks his audience whether they can remember a particular place in nature from their childhood, a place 'they went repeatedly to play, explore, sulk, or think; a small, particular corner of the landscape where they went to make forts, catch creatures, and mess about with water and plants' (p. 306). Most people can. Then he asks his audience how many of them could return to their special places and find them substantially intact. Very few can. Most find such a realization distressing. According the Pyle, humans need not only the large wild places, but local untrammeled areas, even a vacant lot, by which to connect to nature. Such areas, according to Pyle, protect us from what he calls the extinction of experience whereby lack of interaction with rich ecosystems leads to lack of concern for their protection, which leads to further lacks of interactions. Thus the extinction of experience is a cycle whereby environmental impoverishment begets greater environmental impoverishment.

Fredston (2001) also points to the problem of environmental generational amnesia from her decades of experience rowing more than twenty thousand miles of some of the wildest coast lines in the arctic waters. On one of her trips to Norway, she mentions that much of Norway's built environment has an aesthetic that most towns in Alaska (where she lives) lack. But she adds:

> Still, even the undeniably beautiful portions of the Norwegian coast that send visitors from more

> developed, congested parts of Europe into raptures seemed sterile to us…That experience frightened us to the marrow. It made us realize that, like the perpetually grazing sheep [in Norway], centuries of human habitation have nibbled away not only at the earth but at our perception of what constitutes nature. When we do not miss what is absent because we have never known it to be there, we will have lost our baseline for recognizing what is truly wild. In its domestication, nature will have become just another human fabrication. (p. 217)

Fredston then recognizes that the ' ''Norwegianification" of Alaska is occurring, one project at a time, with each road, each bridge, each new house built where none has been before' (p. 219).

The problem of environmental generational amnesia offers an important area for future systematic research. One line of investigation could continue to focus on what children know about environmental problems, and to distinguish experiential knowledge from what DeVries (1997) calls 'school varnish' – such as rote memorization of environmental problems. A second line of investigation could focus on historical events and records. For example, Hand (1997) documents how while many centuries ago the forests in the Highlands of Scotland were as 'grand as any on earth' (p. 12), today they are one of the most deforested lands in the world. Yet, according to Hand, the Scots of today have virtually no conception of a forest, of its ecological vastness or beauty. Hand presents these ideas in an essay titled 'The Forest of Forgetting.' It is a forgetting that crosses generations. A third line of investigation could focus cross-culturally. If, as proposed, environmental generational amnesia is tied to a constructivist account of knowledge formation, then it should appear universally.

The Moral Dialectic Cross Species

Young children engage in a good deal of personification, which refers to 'their attempts to predict and explain behaviors and properties of animals and plants by using their relatively rich knowledge about humans' (Inagaki & Hatano, 2002, p. 1). For example, a five-year-old boy in a study by Inagaki and Hatano (2002) said: 'We can't keep it (a rabbit) forever the same size. Because, like me, if I were a rabbit, I would be five years old and become bigger and bigger' (p. 51). Here the child applies his knowledge about human growth to an animal.

One could imagine a developmental account, however, that is less unidirectional, as well as applying in the moral domain. Imagine, for example, a four year boy, John, whose home environment includes a gentle Chesapeake Bay Retriever and a seven-year-old brother. As part of exploring the world around him, imagine that one day John pulls on the ears and nose of his Retriever. Kids do these sort of things. In response, the dog gently nips

John and then moves away. John then tries pulling on the ears and nose of his older brother, and the brother responds largely in kind, swatting John's hand and moving away. We can use this event, a single snapshot in time, as a place holder for the kind of events by which John constructs similarity relationships between two sentient creatures: dog and human. Next imagine that John tries sitting on the back of his dog, and again the dog gently nips and moves away; but when he tries the same activity with his older brother, he finds he gets a piggy-back ride – sometimes. This event is a placeholder for John's construction of differences between dog and human, again as just a snapshot in time. The proposition is that such explorations and interactions happen daily, and on a microgenetic level lead humans to a *bidirectional cross species* construction of knowledge. As Shepard (1996) suggests: 'Of each species we can say, 'I am not that — and yet, just in this one respect, it is like a part of me,' and so on, as though with every 'I am not that one' we keep some bit of them. We take in the animal, disgorge part of it, discover who we are and are not' (p. 72). And, it could be added, we discover what the non-human world is, and is not.

Evidence for the construction of moral similarities and differences across species emerged in Kahn's (1999) research on environmental moral reasoning, and particularly his characterization of two forms of biocentric reasoning. One form occurred through establishing isomorphic relationships. Here children compared natural entities (usually animals) directly with humans. For example, one child said: 'Fishes, they want to live freely, just like we live freely...They have to live in freedom, because they don't like living in an environment were there is much pollution that they die every day' (Kahn, 1999, p. 101). Thus an animal's desire ('to live freely') is viewed to be equivalent to that of a human's desire, and because of this direct equivalency children reasoned that animals merit the same moral consideration as do humans. Such isomorphic reasoning should not be confused with personification where an animal or plant is likened to a human or human quality; rather here a moral feature (such as freedom) is deemed important to both nature and humans, and on that basis a moral principle (such as to protect freedom) is applied equally to both nature and

humans ('Fishes, they want to live freely, just like we live freely').

A second form of biocentric reasoning occurred through establishing transmorphic relationships. For example, a fifth grade child said:

> 'Fish need the same respect as we need....Fishes don't have the same things we have. But they do the same things. They don't have noses, but they have scales to breathe, and they have mouths like we have mouths. And they have eyes like we have eyes. And they have the same co-ordinates we have....A co-ordinate is something like, if you have something different, then I'm going to have something, but it's going to be the same. Just going to be different.' (Kahn, 1999, p. 101, 104)

This child appears to draw on a word, co-ordinate, he encountered in some other context to help him explain that while fish are in some respects not the same as people (they don't have noses like people do) that in important functions (such as breathing and seeing) they are the same. Thus he moves beyond a reciprocity based on directly perceivable and salient characteristics to be able to establish moral equivalences based on functional properties. Said differently, through transmorphic reasoning the child is able now to coordinate similarities with differences cross species: a developmental achievement.

The cross-species dialectic can and often does play out not only by affirming the moral but the immoral. The literature shows, for example, close linkages between child abuse, domestic violence, and animal abuse (Ascione & Arkow, 1999). In one study, for example, Quinlisk (1999) found that of the homes that had reported domestic violence, 72% (23) also indicated that there was animal abuse. Some of the written qualitative comments included 'He killed the ferret just to scare us' (p. 170). Or 'Because I was late getting home he put my cat in the microwave. The cat died later that night' (p. 170). Ascione & Arkow (1999) suggest that violence 'directed against animals is often a coercion device and an early indicator of violence that may escalate in range and severity against other victims (p. xvii). Other literature suggests that particularly aggressive acts against animals are an early indicator in children of future psychopathology (Arkow, 1999; Kellert & Felthous 1985), and that exposure to animal abuse can desensitize children to violence between humans (Ascione, 1993).

Conclusion

A good deal of research and scholarship lies at the intersection of nature and moral development. Taken together, the literature points in a reasonably clear direction. As Homo sapiens, we came of age in close contact with a rich and varied natural environment, and to a large degree unrecognized by modern people we still depend on nature for our physical and psychological wellbeing. As Dubos (1968) writes: 'It is questionable that man can retain his physical and mental health if he loses contact with the natural forces that have shaped his biological and mental nature' (quoted in Shepard, 1998, p. 147). Through interactions with animals, children develop empathy, and construct concepts of reciprocity and otherness that are hallmarks of human morality. Children at times reason about their relationships with nature from a moral perspective. This perspective has features that are morally obligatory (based on criterion judgments of prescriptivity, rule independence, and generalizability) and can be based on both anthropocentric moral considerations (such as human welfare) and biocentric moral considerations (such as that nature has intrinsic value, rights, or a teleology that needs to be respected). Children's connection to wild aspects of nature, be they large tracts of undeveloped 'self-willed' land or even fearful encounters with animals, allows for the development of moral understandings about autonomy, self-organization, and freedom.

References

Beck, A., & Katcher, A. (1996). Between pets and people. West Lafayette, IN: Purdue University Press.

Dubos, R. (1980). Man adapting. New Haven: Yale University Press. (Original work published 1965)

Fredston, J. (2001). Rowing to latitude: Journeys along the Arctic's edge. New York: North Point Press.

Kahn, P. H., Jr. (1999). The human relationship with nature: Development and culture. Cambridge, MA: MIT Press.

Kahn, P. H., Jr., & Kellert, S. R. (2002). (Eds.) Children and nature: Psychological, sociocultural, and evolutionary investigations. Cambridge, MA: MIT Press

Kaplan, R., & Kaplan, S. (1989). The experience of nature: A psychological perspective. Cambridge: Cambridge University Press.

Pyle, R. M. (2002). Eden in a vacant lot: Special places, species, and kids in the neighborhood of life. In P. H. Kahn, Jr. & S. R. Kellert (Eds.), Children and nature: Psychological, sociocultural, and evolutionary investigations (pp. 305-327). Cambridge, MA: MIT Press.

Shepard, P. (1996). The others: How animals made us human. Washington, DC: Island Press.

Shepard, P. (1998) Coming home to the Pleistocene. Washington, DC: Island Press.

Turiel, E. (1983). The development of social knowledge. Cambridge, England: Cambridge University Press.

Turner, J. (1996). The abstract wild. Tucson, AZ: The University of Arizona Press.

Wilson, E. O. (1984). Biophilia. Cambridge, MA: Harvard University Press.

Peter H. Kahn, Jr. is Associate Professor in the Department of Psychology. He received his Ph.D. from the University of California, Berkeley in 1988. His publications have appeared in such journals as Child Development, Developmental Psychology, Human Development, and Environmental Values. His 1999 book (MIT Press) is titled The Human Relationship with Nature: Development and Culture. His 2002 volume (MIT Press) co-edited with Stephen Kellert is titled Children and Nature: Psychological, Sociocultural, and Evolutionary Investigations. His research projects are currently being funded by the National Science Foundation.
Contact information: pkahn@u.washington.edu.
Http://faculty.washington.edu/pkahn/