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ANTHROZOÖS

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Sample References.

Smith, J. 1970. The Effect of Animal Ownership on Child Development. *Journal of Child Development 5:*125–127.

Smith, J., and S.Jones. 1970. *Animals,* 2d ed. New York: Academic Press.

Smith, J. 1970. The Effect of Animal Ownership on Child Development. In *Animals,* 2d ed., 8–14, ed. S. Jones. New York: Academic Press.

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CORRESPONDENCE

THE SIGNIFICANCE OF NAMES

Data collected in my recent survey of 320 pet owners in Providence, Rhode Island, provide some support for the contention that naming one's pet is not a random phenomenon. Rather, pet names are related to the status of the companion animal in the household.

The pet owners in the survey were obtained from a systematic random sample of the telephone directory. Forty-five percent gave their pet(s) human names such as Ben, Kelley, Leo, Luke, Leslie, Jill, Cleo, etc. Forty-one percent of the respondents named their pet(s) after objects (for instance, Brandy, Snowflake, Pumpkin, Gram, named after a graham cracker, Goober, named after a peanut, and Neka, named after an Israeli laundry detergent), while 14% selected adjectives as pet names (examples being Blue, Rusty, Misty, etc.). The tendency to give pets human names was greater among dog owners than cat owners, 50% and 36.4%, respectively. The relationship between name type and pet type approached the.05 level of statistical significance (X^2=5.47564, df=2, p=.06).

Pet names were found to be related to two variables assessing pet status in the household. First, respondents who perceived their pet to be a family member were significantly more likely to give the pet a human name than were those who did not view the pet as a member of the family (X^2=12.14474, df=4, p=.01). Second, perceived importance of the pet in the household affected pet naming. Pets who were considered to be extremely important or very important members of the household were more likely to be given human names than were pets who were relatively unimportant to family members (X^2=9.33940, df=4, p=.05).

Similar patterns were found in regard to the utilization of nicknames with pets. Nicknames are viewed sociologically as important indicators of intimacy among humans. Forty-one percent of the pet owners in the sample used nicknames in referring to their pet(s). For example, one respondent had three dogs named Arnie, Barnie, and Marnie. The nicknames that she often used in referring to the pets were Hunky, Bunky, and Lunky.

Unlike name type, the tendency to use nicknames with pets did not differ by pet type. Forty-two percent of the dog owners and 40% of the cat owners used some form of nicknames with their pet(s). However, the nicknames were related to the perception of the pet as a family member (X^2=10.65061, df=2, p=.004) and the perceived importance of the companion animal in the household (X^2=19.04994, df=2, p=.0001). Nicknames were most likely to be used with pets who were viewed as family members and who were rated as important members of the household.

Neither name type nor the use of nicknames with pets were found to be related to the summary scale of pet attachment used in the study. Thus, while pet names may be an indicator of the status of the pet in the household, there is no evidence in our data that they are a reflection of pet attachment.

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EDITORIAL

As Eugene Garfield has shown via his Science Citation Index, the average scientific report is cited only a few times (approximately twice a year for four to five years). However, certain special papers have enormous impact and are cited hundreds or even thousands of times. This is not to be expected in the very new field of human-animal interaction, where the number of individuals publishing in the scholarly literature covered by the Science Citation Index is growing but still small. Because the literature is still relatively sparse, it is not difficult to identify certain seminal publications that have had great influence on this young research field, such as the work by Levinson or Corson. However, there are other papers that should be included in the "high-impact" category even though they may not have been widely cited in the recent literature on human-animal interactions. One such paper is Gould's (1979) analysis of the neoteny of Mickey Mouse. Another is Leach's (1964) remarkable analysis of animal categories and verbal abuse.

Leach's paper is rich and complex and the arguments plumb several levels of meaning. The work is thus very difficult to summarize, especially when the summarizer is a biochemist like myself who has only a very superficial understanding of anthropological literature and concepts. Nevertheless, one does not have to master the nuances of astrophysics to comprehend the broad outlines of the Big Bang theory. So, with Leach's paper, one does not have to be a trained anthropologist to gain insight from his arguments.

Leach notes that the language of obscenity (no matter what language is studied) falls into three broad categories:

a) dirty words—those referring to sex or excretion
b) blasphemy and profanity
c) animal terms in which a human is likened to an animal

Now, one does not have to be a psychiatrist or psychologist to understand that terms dealing with sex and excretion can have linguistic potency. Similarly, even in the modern secular age, it is understandable why blasphemy and profanity should arouse or release emotions. However, animal categories of verbal abuse seem less easily accounted for. In Leach's words, "when an animal name is used…as an imprecation, it indicates that the name itself is credited with potency. It clearly signifies that the animal category is in some way taboo and sacred. Thus, for an anthropologist, animal abuse is part of a wide field of study which includes sacrifice and totem ism." In the simplest terms, one could be provocative and state that animal symbols appear to be sufficiently important to humans to be placed on a level similar to God and sex. For those of us who study human-animal interactions, or campaign on behalf of the welfare of animals, it is reassuring to have Leach arguing that we are studying or involved in a phenomenon of some social importance, as opposed to a side issue of marginal relevance.

Unfortunately, it is characteristic of academic discourse that whenever one finds a paper that agrees with one's own intuitive ideas (or innate wisdom!), somebody sooner or later comes along with a contrary argument to rock the boat. Thus, anthropologist John Halverson (1976) published a stinging critique of Leach's paper twelve years later that deplored Leach's loose and varied use of the term "taboo," and that identified a host of errors in Leach's etymological scholarship. Halverson argued as well that the negative connotations associated with animal terms might simply reflect the basic "human-versus-animal" distinction rather than some deeper taboo associated with human difficulties in categorizing domestic animals as "us" or "not-us." Halverson's arguments are detailed and convincing, and yet it seems he goes too far in the other direction in trying to reduce the place of animals in human life to the merely mundane, and in eliminating any role for animals or animal terms as symbols of varying degrees of potency.

Humankind has always struggled with assigning a proper status for animals in the world view of the moment. Hunter-gatherer societies indulge in elaborate propitiation ceremonies to appease the spirits or spirit-guardians of the animals they have killed. Modern societies appear, superficially at least, to have overcome their guilt at killing

animals, and yet a closer examination raises the question of whether we might merely be hiding a deep-seated and unexamined guilt. For example, the common use of the term "sacrifice" in animal research may be meaningful in this regard. In kosher slaughter, the actual killing is performed by a holy man, the *shechita,* because he has the grace and strength of character to bear the associated guilt. In Tibet, butchers are considered outcasts. Recreational hunters of the present day, especially those such as Aldo Leopold who have achieved a significant communion with Nature, enjoy the hunt and the kill, and yet agonize over the paradox that their felt bonds with nature are strongest only when they kill one of its denizens (Elder, 1986).

This issue of *Anthrozoös* includes several of the invited papers presented at the enthusiastic and uplifting international conference held in Boston in 1986. The other invited papers will appear in issue four. These papers continue the tradition of wide-ranging and multi-disciplinary scholarship exemplified by Gould and Leach. Because of their potential impact, all the invited papers will be collected into a single volume that will, together with an introduction by myself and a conclusion by Bruce Fogle, form the official proceedings of the Boston conference. It is to be hoped that this volume will help to maintain the interest in and enthusiasm for this field of study observed at the Boston conference.

A.N.Rowan

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MCCULLOCH LECTURE

THE IMPORTANCE OF ANIMALS AND CHILDREN: THEIR PLACE IN THE FAMILY AND IN THE WORLD

Robert W.ten Bensel, M.D., M.P.H.

"We begin to live when we have conceived life as tragedy."

WILLIAM BUTLER YEATS (1865–1939)
Autobiography

History teaches us that all human beings in all times, in all places, have had language and a family unit to transmit culture. To these basics should be added the presence of animals and nature. All human cultures have also had taboos against incest and gratuitous cruelty.

These ancient themes of humans, animals, and nature in a world of harmony are shattered when there is gratuitous cruelty or incest that destroys the development of both the individual and the family. Gratuitous cruelty is unjust, terrorizing in nature, and irrational because it is without limits, and without cause. It is never "justifiable" in the human community. As far as we know, willful, sadistic cruelty does not occur in the animal world.

These are the themes that bring us together today in memory of Michael J.McCulloch. Michael knew from his work as a psychiatrist that violence and uncontrolled rage exist in humans. He also knew the need for the undeserved gift of compassion (mercy) and sensitivity toward all life. Unlike our animal counterparts, the human being struggles constantly to know the good from the evil. The human's knowledge of death, and of his or her own individual death, creates a normal anxiety of the human condition.

John Donne (1572–1631) in *Devotions* writes eloquently of this issue, "Variable and therefore miserable condition of man!… We study health, and we deliberate upon our meats, and drink, and air, and exercises, and we hew and we polish every stone that goes to that building; and so our health is a long and a regular work: but in a minute a cannon batters all, overthrows all, demolishes all; a sickness unprevented for all our diligence, unsuspected for all our curiosity; nay, undeserved, if we consider only disorder, summons us, seizes us, possesses us, destroys us in an instant."

Michael's death, by gratuitous cruelty, diminishes us all. We have lost a husband, a father, a member of an extended family, a sensitive professional, a man of compassion, and a worker to improve the quality of life for all.

Death is the loss of control over life. It is abandonment and separation from our physical world. We struggle always to find the center of our life in the midst of confusion and chaos. William Butler Yeats (1865–1939) in the opening to his poem, "The Second Coming," expresses the need to find the center:

Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world,
The blood-dimmed tide is loosed, and everywhere
The ceremony of innocence is drowned;
The best lack all conviction, while the worst
Are full of passionate intensity.

As adults we are no longer innocent. We know the consequences of human behavior and that death will come to each of us. Yet in the face of death we are all here, together, because of our love of life in all its forms. We are here to learn more of the relationship between life and the environment. We are all here because we believe in making a better world. We are all here to prevent harm and chaos and to promote health and justice. Most of us believe that what we are doing will make a difference. As William Faulkner said,

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This talk was given as an invited memorial lecture to Dr. Michael McCulloch at the International Conference on People, Animals and the Environment in Boston, August, 1986. Printed here by permission of the University Press of New England.

even when the entire "earth is cold and barren, the human spirit will be alive in the universe."

Why do we do what we do? We need to know about our families, what kinds of people they were, and what they valued. We need to understand our culture and the world around us. It is a constantly changing series of answers with no final conclusions. To ask the question is the beginning of the answer. The question, itself, gives us choices and some control over our everyday life. It gives our lives meaning.

For Michael I would like to give you my thoughts about the importance of animals in the growth and development of healthy children, who are the best investment for a sane world.

The Importance of Animals in the Development of Children

It has been said: "To be a good human one needs to be first a good animal." The human family has contained domesticated animals for thousands of years—most notably the dog, the cat, and the horse. Humans work with animals, engage in sports and relaxation with animals. Normal, healthy families contain companion animals.

In research and clinical work with abused children and battered women, one finds dysfunctional families with such chaos and open hostility that there is a high degree of abuse of animals also. The severely disturbed family is so greatly distorted regarding communication and an understanding of rights and responsibilities of its individual members that violence tends to flow in many directions: toward children, elderly, vulnerable adults, and animals.

We know now that the most important question one can ask about intrafamily violence is whether or not the husband is beating the wife. Forty-five percent of all battered women in the country were victims of child abuse. In 60% to 80% of families where the male hits the female there will also be abuse of children (and probably their "companion" animals as well). The study with my colleague Michael Robin has indicated that children who come from dysfunctional families have more responsibility for the care of "companion" animals and often replace the affection and nurturing that they have missed from the parents with the animal. The children in these families have often had their pets killed violently by parents or other authoritarian adults such as police, thus leaving the child with a sense of anger toward authority (Robin and ten Bensel, 1985).

In our studies of violent prisoners (ten Bensel et al., 1984) we learned that talking about pets is an excellent technique to get past defenses and to begin to talk about feelings regarding a prisoner's views of life. Most violent prisoners can identify more easily with animals than they can with other human beings, who have often been a source of continuous hurt to them. Prisoners' attitudes toward animals reflect their perception of the world, which is largely influenced by their family and their childhood. They want as pets animals who are large and will protect them.

From human studies we know that the most important predictive factor of whether or not you will have difficulty in education is whether or not your parents were interested in you as a person when you were an infant. The rigid, authoritarian family where feelings are threatened if there is lack of discipline has rigid control over the behavior of all members of the family. The family which is impermeable to the feelings of others (lack of empathy) usually suffers from depression. The most authoritarian families have children who have poor self-esteem; they are unsure about themselves and about relationships with their peers. They tend to be isolated and may turn to animals as a way of maintaining contact with reality.

We have much to learn about basic family structure and the role that animals play in normal development and in compensatory adaptation mechanisms for children learning to cope with a dysfunctional human world. It is obvious we need continuing research regarding animal/human relationships. However, we can implement what we already know through humane education. An understanding of animals fosters the development of compassion to reduce the suffering of both animals and humans. As Arthur Schopenhauer (1788–1860) wrote, "Compassion is the basis of all morality." From my research with abused children I would go one step further and say that compassion and the language to express it is the regulator of impulsive anger and the opposite of human violence.

What Is It to Be a Child?

The proper time to influence the character of children is at least a hundred years before they are born. In each of us lives our own childhood and the values of past generations. As human beings we need to be taught what it is to be human and to be a "good animal."

How do we learn to be human? "While we teach knowledge, we are losing that teaching which is the most important one for human development: The teaching which can only be given by the simple presence of the mature loving person" (Eric Fromm, *The Art of Loving*). Developmental psychologists say that we are about one-third our parents, one-third our peer group, and one-third the environment around us. Eighty percent of our learning is visual. Thus the presence of all nature, including animals, is an important part of not only role-modeling but also of the intellectual and moral development of children. This simple fact is represented in the works of great artists, for the "artists are the antennae of the race" (Ezra Pound, 1885–1972).

Love begins relationships and care sustains them. We are born into families. "The first cry of a newborn baby in Chicago, or Zamboango, in Amsterdam or Rangoon, each has the same pitch and key, each saying 'I am, I have come through! I belong! I am a member of the family!'" (Carl Sandburg, 1878–1967). Urie Bronfenbrenner states, "In that primitive Ping-Pong game back and forth between an infant and his caretaker, one learns how to get his basic needs satisfied by other human beings." One really does not understand human nature unless one knows why a child on a merry-go-round will always wave at his parents and why they always wave back.

Dorothy Law Nolte has said,

> *If a child lives with criticism, he learns to condemn. If a child lives with hostility, he learns to fight. If a child lives with ridicule, he learns to be shy. If a child lives with shame, he learns to feel guilty. If a child lives with tolerance, he learns confidence. If a child lives with praise, he learns to appreciate. If a child lives with fairness, he learns justice. If a child lives with security, he learns to have faith. If a child lives with approval, he learns to like himself. If a child lives with acceptance and friendship, he learns to find love in the world.*

In summary, I emphasize that the regulator of violence is language and compassion. Compassion is the knowledge of harm to others and the ethical response to help in reducing pain. "Violence begets violence" and yet "a man is truly ethical only when he obeys the compulsion to help all life…and shrinks from injuring anything that lives" (Albert Schweitzer, 1875–1965).

Mary McCloud Bethune (1875–1955) in her legacy said, "I leave you love. I leave you hope. I leave you the challenge of developing confidence in one another. I leave you with a thirst for education…. I leave you faith. I leave you racial dignity. I leave you a desire to live harmoniously with your fellow men. I leave you, finally, a responsibility to our young people."

In addition, I leave for all of us compassion for all creatures. I leave us all a respect and a trusteeship for our environment. We need a vision of a non-violent world and I believe that Michael would agree with Tennyson.

> *Come, my friends, It's not too late to make a better world…*
>
> TENNYSON
> *Ulysses*

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COMMENTARY

SEEKING A THEORY OF THE HUMAN/COMPANION ANIMAL BOND

Aline H.Kidd, Robert M.Kidd

Abstract. *While studies of human/animal interactions have generated much creditable research, have produced a considerable body of related experimental data, and have pointed to many fruitful future lines of inquiry, their authors have been accused of having no theoretical foundations. But studies of the human/companion animal bond (H/CAB) already undertaken have been based on animal/animal, human/human, and human/object relationships as analogous theories most likely to provide the comprehensive inductive, deductive, and functional theoretical bases needed.*

In order to arrive at a more encompassing theory that can be used to organize data and results, to explain obtained results, and to generate reliable predictions for data not yet obtained, the present weaknesses in each of the models need to be rigorously analyzed for likenesses and differences, and those data that do not seem to fit any of the model analogues must be pinpointed for more exacting research.

Acceptable areas of scientific inquiry are those that have generated theories that explain the findings, tie together sequential or related experimental results, and give rise to ideas or directions for future research. While studies of human/animal interactions have generated much creditable research, have produced a considerable body of related experimental data, and have pointed to many fruitful future lines of inquiry, the researchers have been accused of having no theoretical foundations. Actually, a large number of studies of the human/companion animal bond (H/CAB) already undertaken in the past five years have been based on animal/animal, human/human, and human/object relationships as analogous theoretical models most likely to produce the comprehensive inductive, deductive, and functional theoretical bases needed for a unified theory.

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A theory is acceptably defined as a set of related statements that seem to explain satisfactorily a variety of seemingly related events, data, or results. A good theory, therefore, provides a suitable organizational method, an acceptable explanation, and a reliable prediction for future studies (Elmes et al., 1981). This is particularly important where similar experiments have produced greatly differing results. Many studies, for example, have demonstrated distinct pet ownership benefits for everyone. One study, however, proved that pets were a burden rather than a benefit for rural farm women (Ory and Goldberg, 1984) and another proved that employed men deeply involved in service organizations dedicated to helping other people were better off emotionally without pets than with pets (Martinez and Kidd, 1980). A viable theory, therefore, would separate out and then group together studies proving pet ownership benefits from studies proving pet ownership liabilities. A final theory would provide a construct that would separate the benefits group from the liabilities group and also provide for the generation of predictions for situations where no data have yet been gathered (Sidman, 1960). The theory of benefits and liabilities would then be able to predict, on the basis of group characteristics, whether a selected group would perceive pet ownership as conferring benefits or liabilities.

According to McBurney (1983), theories can be generated in four ways. An *inductive* theory begins with the data base provided by a number of related studies and organizes the relationships found in that data into theoretical principles. A *deductive* theory begins with observations and predictions that generate research to test the predictions. If the data do not support the predictions, the theory is altered and new predictions

are made and tested. A *functional* theory combines inductive and deductive elements. A *model* theory begins with an analogous metaphor which notes that the phenomenon currently being investigated is analogous to some similar concept in physics, chemistry, or electronics technology.

Models, however, are analogies and are not expected to be totally accurate. In the human-eye-as-a-camera model, for example, the retina actually processes incoming data while camera film merely records data. The human lens is controlled by involuntary nerves and muscles, while the camera lens is controlled by programmed electronics. Yet despite inaccuracies, and despite the fact that it is difficult to tie together several models to explain several differing situations, the model is useful even though it is usually related only to a few specific situations or types of situations. In many fields, but especially in the social sciences, researchers feel that the extensive use of models has produced a theoretical structure rather like a patchwork quilt, but with the bits and pieces less closely united. Although all fields would prefer an all-encompassing theory, most researchers believe that model theories will not soon be replaced with anything better (Elmes et al., 1981).

While there is no overall inductive, deductive, or functional theory for all or even a majority of the data we already have, there are three basic model theories: animal/animal, human/human, and human/object relationships which are individually, and in combination, analogous to human/animal relationships and attachments.

Arising primarily from ethology, the animal/animal relationship model has limited application for animal/human attachments. Ethologists (Tinbergen, 1951; Lorenz, 1952; Griffin, 1976) hypothesize that animal social behavior endures because it has survival value for the species and the individual. Therefore they focus on intra- or species-specific rather than inter- or cross-species behaviors and characteristics. The small jaws, short limbs, large heads, seemingly huge eyes, and general sense of behavioral helplessness in very young mammals are all characteristics that comprise a *releasing stimulus* that elicits nurturing and care-taking behaviors from adults. The domestication of wild animals leads to *neoteny,* the retention of these infantile and/or adolescent physical and behavioral characteristics in the adult. Thus, neotenized domestic animals will have the characteristics eliciting care-taking responses from humans. The human/companion animal bond, therefore, consists of care-taking responses elicited by neotenized features.

Further up the phylogenetic scale, behavioral characteristics are more often based on psychological and cultural factors than on strictly biological changes. The human/human interrelationships analogy has helped explain a large number of current human/animal attachment studies. For example, in the early 1800s leisure was almost unknown, because 12- to 14-hour workdays were the norm. When the number of work hours decreased, the resulting leisure time was invested in increased family interactions. The Leisure Theory (Neulinger, 1980) holds that, as leisure time continues to increase, most individuals have still more time to spend on interests other than family or job. Crandall (pers. comm., 1986) notes that pets provide one type of human leisure activity, particularly since pets may be useful in helping to reduce the unhappiness and stress that increased leisure may produce. Pets provide unconditional love and the kinds of increased activity needed by stressed people.

Yet even this analogy is incomplete. Humans and animals differ in many respects, primarily in the areas of language, learning, and culture. However beneficial, animal companionship can be only a partial substitute for diminished human companionship.

Brickel (1982) applies the Learning Theory to view pets as a form of stimulus for the human, and a pet's behavior as a form of reward for human behavior toward pets. When two humans interact, each serves as a stimulus for the other. This is also true of human/animal interactions. A person returns home. The pet expresses affection. The persons pets the animal. The animal shows pleasure by increasing the affectionate behavior and the person feels pleasure at these responses. But humans also become attached to such animals as hamsters, guinea pigs, fish, turtles, snakes, and lizards that do not really respond or that respond negatively; so, while the stimulus/reward relationship probably has some relevance to the general

study of human/animal interactions, it is too limited and too general to provide sufficient explanation.

Developmental psychology suggests models based on both touch and play. Although modern American society in several spheres rules out physical touching to communicate emotional relationships, physical touching is nonetheless extremely important (Montagu, 1971; Jourard, 1974). Premature infants weighing 3 to 5 1/2 pounds thrive better, gain more weight, and cry less if they are touched regularly by care-takers (Winnicott, 1960). Yet recent studies show that babies weighing between 1 and 2 pounds are distressed rather than comforted by the additional stimulation (Field, 1979). Adults who are physically touched at the time of a request being made of them are more likely to fulfill the request of the "toucher" (Latane and Darley, 1970). Visitors who are touched as they enter a library or office are more likely to rate the library or office positively and to respond more favorably than those who are not touched (Trefethen, 1982). College students who are touched as they are handed a personality test rate themselves as having significantly more feelings of well-being than those who are not touched (Carstairs, 1982).

Because all of these studies have indicated positive outcomes of being touched, it has been assumed that touching animals will produce similar benefits to people. Furthermore, Baun et al. (1984) and Jenkins (1986) demonstrated that petting a familiar animal will reduce blood pressure. More research is needed in this area, however, especially to prove whether touching and being touched produce identical effects. It is probable that touching a soft, furry animal may have different effects than those produced by touching a rough-coated animal or a turtle or snail. Kidd and Kidd (1985) found that owners of dogs, cats, and horses spent significantly more time stroking and petting than did owners of birds, turtles, and snakes. So, while touch is an important variable, it too leaves a great deal to be explained.

Similarly, the studies indicate that play at all age levels gives the players enjoyment, voluntariness, a change in reality, especially of time and causality, without emphasizing practicality (Schell and Hall, 1983). Of course Levinson (1972) had already noted that pets provide a special type of play and activity for humans of all ages. Pets are most frequently seen as playmates or companions, although children under two years probably view live pets as toys similar to teddy bears and other soft objects. The implied analogy between human/human and human/animal play, however, is still on shaky ground. By age seven, children are fully aware of the differences in capability and behavior between themselves and pets, and these children accordingly adjust their play activities with a pet to the pet's behavioral abilities. Only children of five and younger equate a pet with another child (Kidd and Kidd, 1985).

Social psychology indicates that people select mates and friends on the basis of "birds of a feather flock together" *similarity* (Murstein, 1970) and "you have what I myself lack" *complementarity* (Winch, 1958). Kidd and Kidd's (1984a) research suggests that pet selection and bonding are as well based on just such characteristics. Even so, similarities and complementarities between a person and a pet cover a much more restricted range of behaviors than they do between two people, and this fact constitutes a fairly serious flaw in the attempt to find parallels in the human/human and human/animal studies.

Social psychology's idea that certain factors in the environment are "social lubricators" that facilitate the initiation and continuation of social interactions between people has also been applied to pets (Messent, 1983a, 1983b; 1984). Studies have noted that people with pets are seen as less threatening than people without pets. And it is certainly obvious that pets give their owners a topic of conversation that interests and attracts others. Still, the animal-seen-as-human analogy fails considerably in this area, too. Other humans, particularly strangers, are far more likely to serve as social inhibitors than as facilitators. In this case, the difference between animals and humans is apparently the factor that elicits social facilitation when pets are present.

It has also been suggested that a human/animal relationship is analogous to the mother/baby relationship (Simon, 1984). As already noted, today's domesticated pets are neotenized and so are usually "seen" as infants. While it is probably

true that some adults see pets as substitute infants or children, such behavior appears to be somewhat more characteristic of women than of men, and yet is certainly not characteristic of all women. Again, the model is too limiting.

The therapeutic use of pets is a final area in which pets are seen as analogous to humans (Kidd and Kidd, 1984b). Pets have been reported as helpers in restoring feelings of hope and the sense of being loved and needed to the elderly. Dogs serve as eyes and ears, sometimes as "hands," and horses assist in physical therapy programs for the handicapped. Pets can help the development of adaptive personality traits and serve as diagnostic tools for childhood emotional disturbances. Pets have helped make mental patients more receptive to therapy, thereby reducing the withdrawal tendencies in the disturbed; animals' presence as resident pets has helped reduce the incidences of prison violence. However, in pet therapy programs it is primarily the differences, rather than the similarities, between pets and people that are significant. Pets are usually available, do not talk back or argue, do not base the giving of love on the maintenance of socially acceptable behavior by the human, and are unconcerned with race, color, creed, sex, or age.

It should now be clear that the analogies between human/human and human/animal relationships provide a limited utility model. Further, this model is distorted by *anthropomorphism,* the attribution of human mental and emotional capacities to animals, and the assumption that animals act from motives similar to those of humans. The model is further skewed by the opposite of anthropomorphism, *zoomorphism,* or the attribution of animal emotions and behaviors to humans. Darwin (1872) and Lorenz (1952) both assumed that animals have mental experiences similar to those of humans and described animal behavior in anthropomorphic terms. However, Tinbergen (1951) argued that there was no basis for inferring subjective experience in animals, and noted that anthropomorphic explanations were erroneous and unscientific. Griffin (1976), however, suggests that animals do think about objects and events that are not immediately present and use mental images to regulate behavior, but does not assume that animal and human mental experiences are identical.

Although human babies primarily bond to other humans, they also become attached to such objects as blankets and/or favorite toys (Whaley and Wong, 1982; Mahalski, 1983) as do primates other than mankind (Harlow and Zimmerman, 1959). Attachment objects seem to satisfy comfort and security needs. One study showed that babies with a blanket attachment played and explored more freely and expressed less distress when their mothers left the room than babies who were not so attached (Passman and Weisberg, 1975). Harris (1986) suggests that pet attachment is simply a non-human attachment like a blanket cathexis. But young humans usually give up object attachment after the pre-school period, while 80% of school children maintain that their pet is a "special friend" and talk to their pets about feelings and secret experiences as often as they talk to their siblings or peers. Further, the more intimate the talks school-age children have with their pets, the greater the empathy they have with their peers (Bryant, 1982). In general, the human/object attachment model as analogous to the human/animal attachment seems to apply only in that both pets and objects provide security and comfort.

Although the three basic analogical models do explain certain aspects of the human/companion animal relationship, each is clearly inadequate by itself. Nor does combining the three models noticeably increase our ability to organize data and results, nor to predict accurately for untested situations. The best that can be said is that sometimes, under some circumstances, and in some ways, human/animal relationships *are* analogous to animal/animal, or to human/human, or to human/object relationships. Obviously, the next step is to determine the *exact* times in "sometimes," the *specific* circumstances in "some circumstances," and the *particular* ways in "some ways."

Because much of the current information concerning interrelationships comes from folklore and from the popular books and magazines often produced by uninformed or misinformed writers and editors, a first consideration would be to look closely at a number of companion animals in terms of species, breed, sex, and individual characteristics in order to determine the actual appealing characteristics of the various species. *How* do different species of both "caged" and "free" pets differ in their aggressive or antagonistic

behaviors, their sexual, eliminative, and exploratory behaviors, their epimeletic or care-giving and et-epimeletic or care-soliciting behaviors?

After determining these species-specific characteristics for each species, the intra-species differences can be determined by looking at breeds. Here, too, much of the material on similarity or complementarity between breeds within a species is distorted by cultural perceptions. However, Hart and Hart (1984) have made an excellent start with evaluations of breed-specific characteristics of dogs and cats, and within-breed sexual differences with dogs.

Environmental factors in the histories of pet animals also need more investigation. For example, Karsh (1984) reported that kittens handled from three weeks of age are more responsive to people than kittens handled only after eight weeks, and Freeman et al. (1961) noted that dogs are best socialized as pets at from three to twelve weeks. But then, what are the long-term effects of early human contacts on other species? Pet discipline is a vital question here. Kidd and Kidd (1985) reported that a majority of children believe that physical punishment is the best method of modifying pet behavior. Animal behavior, like human behavior, is plastic, although the amount of plasticity varies with the species. To what extent, then, can the established effects of physical punishment or abuse be trained out of an individual animal? To what extent can behavior training modify inherited behavioral tendencies? At what age is resocialization training no longer effective? And what are the effects of different owner personalities on pets? If tense, over-active humans can produce tense, over-active pet behaviors in some, if not most, species, could not a quiet, gentle human recondition a nervous, hyperactive breed or species? Or could a normally quiet, gentle breed help "gentle" an over-active human?

The human side of the bond also needs to be examined closely. Are age, physical ability, sex, personality traits, and living environments important variables? Can the disabled elderly or children in restricted environments bond to birds or cats as a *second* choice? What of the developmental times in the human life span when owner-sex affects pet preference? There may even be an unstudied human-sex/pet-sex interaction affecting pet preference (Brucke, 1903; Hall and Browne, 1904; Lehman, 1927; Salomon, 1982). Although Kidd and Kidd (1980) and Kidd, Kelley, and Kidd (1983) studied personal characteristics of dog, cat, horse, turtle, snake, and bird owners, and Brown (1984) studied dog and horse owners, their research was merely the tip of the iceberg. Do owners of different breeds within a specific species show significant differences in personality traits? Intuition suggests that doberman owners and breeders should have personality patterns unlike pug owners and breeders, but there is no data yet to prove or disprove this.

And how do owner living environments and concomitant life styles affect human/animal attachments? Where housing regulations prohibit dog or cat ownership, will a dog- or cat-lover bond to and derive benefits from such small confined pets as hamsters, birds, or fish? Could an urban horse fancier bond to a cat instead? How does the amount of time the would-be owner spends away from home affect bonding? What are the effects of owner involvement in social service organizations? Why did Martinez and Kidd (1980) find that pets were a handicap to adult males deeply involved in social services while Ory and Goldberg (1984) found no relationship between social service organization membership and pet attachment? Do abrupt lifestyle changes alter or prevent good human/animal bonding? The number of dogs owned has dropped and the number of cats owned has risen as a higher percentage of married families are remaining childless by choice (Friedman, 1986). Does this trend suggest significant differences in pet ownership and bonding between such childless families and families with children? Are the pets in childless families merely more feasible, easier-to-care-for substitutes for children?

The owner's personal history with pets also needs to be examined. Do persons of a given age-group, with specific personality traits and living in detached housing in a stable childless family with a specific history, tend to bond to a particular species, breed, and sex? Kidd and Kidd (1980, 1983) noted that adult owners tend to bond to the same species and breeds they loved as children and to reject species or breeds they were taught to, or learned to, fear and hate as children. However, we do not know what other factors in owners'

histories are also important, or why, as adults, someone can switch preferences from dogs to cats, or from horses to dogs. Nor do we know, in terms of individual differences, why a specific person bonds to a specific pet—or why, although this is extremely difficult to investigate scientifically, attachments to mixed breeds are often more intense. Another unknown, given that half of all American pet lovers prefer animals in general (Kidd and Kidd, 1980), concerns the underlying variables among those who demonstrate an admiration for all animals rather than a solitary love for a specific breed or species.

And what of the most elusive of all groups: the nice ordinary people who simply dislike or are indifferent to all pets; those who, when faced with their negative feelings, invariably offer the reasonable "I don't dislike animals; I just think it's cruel and inhuman to have any animal in the city." These people rarely willingly offer themselves as research subjects, yet somehow the human and animal characteristics which prevent or interfere with bonding in this group need to be investigated.

Although all these psychological theories and models have helped explain many, if not all, of the similarities and some of the differences in human/animal bonding interactions, it is quite clear that present theoretical formulations will remain inadequate because they are incomplete. In addition to the questions raised above in connection with the models, there are still vast areas to investigate scientifically in order to establish the broad data base needed to generate valid and valuable theories of and for the human/companion animal bond.

OPEN PEER COMMENTARY

Are We Ready For A Theory Of Human-Animal Relations?

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The authors of this paper are to be congratulated for recognizing the need for more theory in the burgeoning area of human/animal interactions. However, we do not find their proposed solution to be particularly useful.

Kidd and Kidd recognize four kinds of theories: inductive, deductive, functional, and model. They dismiss the first three approaches in reference to human/animal relationships. Three basic models (animal/animal, human/human, and human/object relationships) are then used to evaluate various theories of human/animal bonds. The inadequacies of existing theories are discussed, and a list of interesting questions deemed worthy of future investigation close the Kidd and Kidd paper. It is, unfortunately, the very eclecticism of the views presented that creates problems. Not only are there no accepted models of animal/animal, human/human, or human/object relationships, the studies quoted are often out of context and, as often as not, the authors' arguments rely on appeals to authority. While there may be some heuristic value in the proposed typology of theories of human/animal bonds, we do not feel that this paper provides significant new insight into the question of why humans form intense relations with members of other species.

The authors are correct in claiming that there is at present no single model that will satisfactorily explain the diversity of human/animal bonds. But is this lack of theory so surprising? Given that social scientists have only recently begun to explore the relationships between people and animals, the construction of any all-encompassing theory seems to us premature and destined for failure. The relations between animals and humans are diverse and complex (see, for example, Serpell, 1986). Species differences, cultural variation, and

the divergent roles that animals play in human life complicate the development of a unifying theoretical model at our current state of ignorance. Doesn't a science need to go through initial stages of observation, description, and taxonomy, along with seat-of-the-pants generalization and speculation before donning the mantle of theory or model with all the quantitative precision this implies?

Further, psychology itself is a field in need of a unifying theoretical perspective and is filled with unresolved topics of everyday occurrence within our own species and culture. For example, such diverse phenomena as anorexia nervosa, church attendance, and juvenile delinquency are the subjects of sometimes bitter debate among those who prefer psychoanalytic, social learning, or biological explanations of human behavior. In this light, it is not surprising that the study of human/animal bonds is even less advanced. It is all too easy to get the metaphorical cart before the horse. It seems to us that major advances in psychological and ethological theory have typically come only after specific phenomena have been initially studied descriptively and comparatively.

In addition, we have some specific quibbles with Kidd and Kidd's analysis:

1. We take issue with the authors' seemingly facile dismissal of the insights that an evolutionary perspective might offer to the interpretation of human/animal relations. Baby releasers are briefly mentioned but not other ways in which animal attachments could have influenced fitness (such as dogs barking at danger or cats keeping down rodent pests). Our responses to animals involve a wide variety of considerations including aesthetics, size, utility, rarity, and emotional expressivity that are ultimately linked to biology (Burghardt and Herzog, 1980). Also, it could be argued that baby releasers really belong to the "human/human" category since the attraction to infant animals can be interpreted as a "misfiring" of responses that evolved in an intraspecific context. (Also see Voith, 1985.)
2. Psychoanalytic explanations are completely ignored. These may appear farfetched, but they have been invoked to explain the attraction of pubescent girls to horses (father symbols), fear of snakes (latent homosexuality, penis envy), and so on.
3. The authors also omit the connection between pets and human needs for dominance in their discussion. This can take several forms (Tuan, 1984). Owners may get a sense of satisfaction from having control over a creature, such as those proud of their "trained" pets, a phenomenon most marked at obedience trials for dogs. In a different sense, there have been historical connections in some cultures between animal ownership and status signaling. In many societies, animals have been associated with royalty. More recently, in some larger cities in the United States, pit bulldog ownership has become a symbol of the owner's "toughness" among members of urban street gangs.
4. Cross-cultural and historic perspectives, which need to be incorporated into any complete theory of human/animal bonds, are lacking in this paper. We need much more information on aspects of pet-keeping and animal husbandry in diverse cultures and across time to tease out the culturally specific from the general and ubiquitous (Leeds and Vayda, 1965; Serpell, 1986).

Finally, the authors raise a series of important unresolved questions at the end of the paper. Clearly, there are enough interesting and potentially answerable questions to intrigue and, one would hope, attract growing numbers of researchers from a variety of disciplines to the study of the human/animal (and animal/human) bond.

In summary, we find Kidd and Kidd's to be a provocative paper that may do the field of human/animal relations a service both by encouraging readers to think critically about the necessity of theoretical models and by drawing attention to questions that are in need of empirical investigation. However, the paper does not really help us gain insight or theoretical understanding into why we love, hate, or ignore animals.

Those Who Dislike Pets

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My comments on the paper by Kidd and kidd are centered on the next-to-last paragraph, in which the authors allude to "the most elusive of all groups: the nice ordinary people who simply dislike or are indifferent to all pets." I wholly agree that "the human and animal characteristics which prevent or interfere with bonding in this group need to be investigated." Interestingly, however, my experience as an anthropologist strongly contradicts the authors' statement that the people in this group "rarely willingly offer themselves as research subjects." In fact, believing that first-hand data about these individuals to whom I will refer, for brevity, as "non-animal people" are absolutely essential to the search for a valid theory of the Human/Companion Animal Bond, I have begun anthropological research involving these individuals, using the technique of life history studies.

People have offered themselves, not only willingly but enthusiastically, as subjects for extensive interviews with me. During my investigations, most informants have been very eager to explain their views and feelings as non-relators to animals. In fact, all have been remarkably open and communicative and invariably reluctant to conclude our interviews. Although it is too early in my project to draw conclusions, their obvious penchant for communication, carried to what I can only call loquaciousness, as well as their amiability and extreme sociability in a conversational setting, are outstanding characteristics.

Initially, there was concern on the part of a few informants that because I myself (as the investigator) am known as a confirmed "animal person," some value judgment might be placed on their lack of involvement with animal companions. Such anxieties were easily dispelled. In truth, of course, being a total "outsider" to this group of informants by virtue of my own deep involvement with animals provides the advantage so important in anthropological field work and in the subsequent analysis of data. Insights are gained through the sharp contrasts that exist between knowledge gained about the interviewee and information to be gleaned from my storehouse of introspective information; the characteristics of "otherness" in my study group thus stand out in bold relief.

Our present society has become noteworthy for its acceptance and endorsement of companion animals. The dominance of this ethos regarding pets in this culture has caused social scientists to observe that America is the land of the "sacred dog," and to point to our everyday intimacy with, and permissiveness toward, dogs and other pets to support this notion. But societal ambivalence is also the norm. Stressing the idea that "cultures are less unequivocal than they seem," a prominent scholar has proposed that for each action that is based on an overtly maximized trait in a given society, there is an opposite, often latent, minimized counter trait that also finds expression (Devereux, 1967:210–211). According to this scheme, the non-animal people constitute an illustrative counterpoint to the dominant strain in our society that values family pet-keeping and idealizes certain domestic animals. These people, as such, have much to reveal about their opposite component.

The elusive and complex set of factors that determines the lack of quality and depth in human-animal interactions often operate early in life—typically, I have found, when parents bring home a pet for their children out of a sense of duty. The only boyhood memory one of my informants had of his dog, for example, was that the animal always drank water out of the toilet bowl. When this dog was hit by a car and then shot before his eyes, "it was not traumatic," he said. "I felt no grief, and never wanted another pet."

Undeniably, changes, at least in attitude, may occur later in life. A retirement-age attorney who has been a non-animal person all his life related the following episode. Early in his law career, he was called upon to write a will for an elderly man who lived alone. The client, whose only relative was a retarded nephew, planned to leave all his assets to a dog hospital. The lawyer told me, "I was shocked. I just shook hands with the man and walked away. I refused to be part of drawing up a document that considered a retarded child less important than a dog hospital." Recently this attorney was part of the audience at an illustrated

lecture I gave on human/animal relationships and the role of animals in human health. Following my presentation, he showed a change of heart. With obvious sincerity, he declared that if he were asked to write that will today, he *would* be willing to do it. Admittedly, this does not make him an interactor with animals, but it may indicate that the potential could develop.

In addition to Kidd and Kidd's example of people "who, when faced with their negative feelings" about pets invariably cite the cruelty of keeping an animal in the city, many other surface reasons for non-involvement with pets are typically mentioned in my interviews. There are the often-mentioned aversions to defecation, odors, and carsickness, a desire not to be "tied down," and fears of the pet running away. What comes across most clearly, though, is that animals are totally extraneous for people of this group. The animals' "otherness" for these people preserves a dividing line between species, precluding intercommunication. Thus for the non-animal person, only actions and reactions are possible, because human-animal interactions in the true dynamic sense do not exist. One informant spoke of her horseback riding lessons as being "just for fun, for the enjoyment of being in the country." She told me "I never related to the horse…I was coldly put on the horse like sitting at a piano." Here there is a marked contrast between the situation in which a receptive child, when given riding lessons, wants, indeed often desperately begs, to be allowed to walk the horse, brush and feed it, or interact with it in any way possible.

Horse/human interactions, because of the physical as well as psychological unity that can be evoked by the sharing of the rhythm and motion of riding, have the potential for what may exemplify the closest fine-tuned intercommunication between two species. Yet this intimacy is often denied by those who have not experienced it. One writer, for example, in describing the "three separate ways in which animals could become a causal factor in initiating therapeutic changes in people," depicts the horse as being only an "instrumental" pathway because "the animal is primarily an object in this setting and need not be personified to affect improvement, just as one need not personify a car in order to derive ego-boosting satisfaction from driving one" (*Pet Psychotherapy* 1983:7–8). Yet one of the main reasons why this type of therapy can be carried out at all is that the horse as a species is outstanding for its ability and willingness to adjust its behavior to the level of experience and capacities of each individual rider. This trait, often noted in literature, is well known to people who interact with horses, and especially to those who deal with young, neophyte, and/or handicapped equestrians.

Along the same lines, I disagree with the conclusion of Clark Wissler (1914) that the horse was merely a "tool," rather than a dynamic force, in Plains Indian culture (Lawrence, 1985:3–4). This notion of the equine animal as a mere object in the context where it actually entered so fully into the spiritual and aesthetic, as well as the utilitarian, spheres of life is a misconception. It belies the intimacy of the horse with the individual and the effects of that animal's partnership status on the society it profoundly altered. What these examples show is not only a dearth of experience with, and understanding of, the dynamic quality of certain interactions with animals, but also the misinterpretation that results when there is a lack of pertinent introspective, subjective data. In seeking a theory of the human/companion animal bond, according to Kidd and Kidd, "there are still vast areas to investigate scientifically." Conclusions are a long time away, but I continue to do research on the fascinating question that is my part of the puzzle: What goes on, or does not go on, inside the "nice ordinary people" without animal companions who tell me they love to read, go to museums all over the world, play music when they return home alone, have to be "hauled off" to zoos and circuses which bore them, deplore cruelty to any form of life, and receive a great deal of affection from their families?

Problems With An Encompassing Theory

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Kidd and Kidd make a timely contribution toward establishing a theoretical basis to describe the human/companion animal bond. They take a thorough and wide-ranging approach in describing the way theories may be generated, and the "analogous theories" that have been employed to date in this field. However, while I accept the place of theory, I would first like to offer comments about the obstacles facing any encompassing theory at the present state of development of the field. Following on from that, I shall indulge in some of my own theoretical speculation which itself will help illustrate some of the pitfalls facing any encompassing theoretical approach.

For any theory to become well established, the data must be of sufficient quality to test or support it. As Beck and Katcher (1984) have commented, there has been a tendency for claims to be made in this field that go beyond the supporting data. Additionally, many of the data-based studies cited by Kidd and Kidd have some weakness from a methodological or statistical standpoint, and I would include my own here, too. Therefore the data forming the basis for any encompassing theory must at the present time and in the short-term future be regarded as relatively weak.

The second point I would make is the interdisciplinary nature of the field, which was alluded to by Kidd and Kidd but deserves further emphasis. It is being asked that the different theoretical approaches of, say, experimental psychology, ethology, and anthropology should find common ground in a single encompassing theory on the human/companion animal bond. Since such a commonality has not been achieved in other fields where these disciplines overlap, it is being optimistic to expect them to come together in a single theory on the human/companion animal bond. It is indeed one of the striking features of the field that so many different pure and applied scientific disciplines find themselves with a common interest, but not necessarily with the desire for or reality of a common method of approach and theoretical framework.

To illustrate some pitfalls, I shall propose my own version of an encompassing theory. Coming from an ethological background, I would begin by stressing more of the animal side of the bond. The fundamental question I ask is, What is the adaptive benefit of the human-animal interaction that reinforces and permits the occurrence of the behavior? I would predict that for a behavior to occur with the frequency of human-animal interactions, there should be a reproductive advantage, however small, to one or more likely to both participants. The description of an advantage would then lend support to the theory. From a biological perspective, the animal side could be considered as aberrant since companion animals are bred subject to human rather than natural selection, to a greater or lesser extent depending on species. Thus, any tendency for humans to increase breeding rate for individuals displaying greater interactions with people will increase the incidence of that behavior in the population as a whole.

The human side of the dyad is more interesting, as a natural selection needs to be postulated. An alternative view is that human/pet interactions are misdirected behaviors, analogous to herring gulls preferring giant eggs to their own in Tinbergen's classic study. A more positive reason seems at least somewhat more likely not only due to the widespread occurrence of the behavior across cultures, but also to similar behavior between non-human dyads such as baboons and cats, and not least because of the number of studies showing benefits to people of the human/companion animal bond.

It is my contention that if a positive selective reason could be found for affiliative interspecies relations, it would go some way toward providing a testable theory. Katcher (1985) has made a proposal that would fall within this framework even though he approached the topic from a psychiatrist's viewpoint. In summary, he suggested that touching or looking at a calm pet could be relaxing, so helping to reduce blood pressure and even to assist recovery from coronary artery disease. This by itself could give sufficient adaptive benefit to explain the behavior.

While I am happy to start with a theoretical basis such as this, I see that it has immediate shortcomings. There are too many observations to date for which a natural selection benefit is an

irrelevance. For example, psychotherapy with pets for elderly people does not invite a theory involving natural selective advantage. I would be happy to accept a theory such as reminiscence having a health-promoting benefit, with a dog being one of many stimuli that can act as a trigger for such reminiscences.

To conclude, I foresee the possibility of an encompassing theory on the human/companion animal bond, but do not believe the time is yet right. This is a highly diverse and young field almost unique in the diversity of scientific disciplines that have come to investigate aspects of the phenomenon. It is not clear whether this field of study is a unitary phenomenon or not; neither is it clear whether so many disciplines could unite in a common theoretical approach. I cannot be optimistic that my outline "theory" or any others could possibly apply to all aspects of the human/companion animal bond for reasons already stated. What I do believe is required is a theory for particular phenomena, and sound research on which to build. In that way the field will advance and an encompassing theory might ultimately come as a natural consequence of the data and theory preceding it.

Scientism and the Human-Animal Bond

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The point made by Kidd and Kidd regarding the inadequacy of current "explanatory models" for the human/animal bond, while clearly valid, thrusts at the periphery of the issue, rather than at its heart. The key question is not whether the particular models listed explain our relationship to animals—even a moment's superficial reflection, fueled by common sense, would lead one to the conclusion that they do not. The really interesting Emperor's-new-clothes questions that are not even raised by the authors, but that cry for clarification in all areas of human/animal bond thinking, are whether one *needs* a model for the phenomena under discussion, whether one in fact lacks understanding of this area, and whether playing the scientific game according to the rules surveyed by the authors is necessary or even desirable.

The dazzling successes of scientific methodology in explaining a wide array of phenomena should not blind us to the fact that, for certain other phenomena, the effect of applying such scientific tools ranges from the ludicrous to the pernicious. Mindless aping of physical science by social and psychological science, for example, has created a welter of absurdities better characterized as scientism than science. Witness, for example, the early twentieth-century denial of consciousness by positivists and behaviorists, who totally dominated psychology for over 50 years, and who, in essence, told us we do not have thoughts, we only think we do. In its zeal to be scientific, behavioral psychology became only scientistic, and ideologically ruled out by fiat those aspects of mind not amenable to current canons of scientific handling. So powerful is this ideological stranglehold that one must to this day fight tooth and nail to reappropriate common sense in this area, for example to affirm "scientifically" that mental images exist at all or that animals feel pain (Rollin, 1986a, 1986b).

It is unquestionable that science has enjoyed the greatest success where one's locus of interest is the universal and repeatable. Molecules, falling bodies, neutron stars, thermodynamic processes, all lend themselves well to study in a universal tone of voice. We discover laws that apply to all gases; we show that those laws in turn can be deduced from seeing gases as composed of massy particles in mechanical interaction; we refine our view of particles—this is the stuff of laws and theories, science at its best. But there is no comparable progress in areas where our focus of concern is the particular rather than the universal: history, culture, society. For what is important here to us is precisely the differences, not the similarities. As William Dray has pointed out, we want to know why the *French* Revolution in particular took place. If we seek scientific laws of revolution, we end up either with banalities like "if one oppresses people enough they might revolt," or descriptions so precise they restate only the particular case in question (Dray, 1957).

Medicine provides an interesting case of the need for balancing the universal and the particular. We unquestionably gain a great deal by

understanding the biochemical regularities and irregularities underlying disease. Unfortunately, we also lose much when we look at disease solely in its universal aspect. We lose sight of the fact that each individual is different. As Oliver Sacks has pointed out, Parkinson's disease or migraine or any other illness is very different in different individuals, for all sorts of physical, psychological, social, cultural, and value-based reasons (Sacks, 1976). Loss of sight of this fact is mirrored in the education and practice of physicians, for whom the case study has vanished as a teaching tool, and who speak scientistically of "the kidney in room 27."

Nowhere is the inappropriateness of scientism more manifest than in those areas optimistically dubbed the "social sciences." Anyone who has perused the astounding combination of newspeak, formalization, and jargon endemic to much of such fields as sociology and social psychology quickly realizes that instead of reducing the unfamiliar to the familiar (Plato's view of explanation), scientism does a dialectical reversal, and reduces the familiar to the (jargonized) unfamiliar. Nothing is explained—indeed, it is rare that new information is even adduced. Consider some examples supplied in this article: Do we really need a study to tell us that people are likelier to stroke cats than lizards? Did someone really publish the leisure theory, which according to the authors tells us that "as leisure time continues to increase, most individuals have more time to spend on interests other than family or job"? Did one really need a study by Schell and Hall to tell us that "play at all age levels gives the players enjoyment, voluntariness, a change in reality…without emphasizing on practical ity" *[sic.]*? And did we not all know that adults tend to "reject species or breeds they were taught to fear and hate as children"?

Were such scientism merely silly, one could live with it. But it has a mischievous side as well. For scientism is deadly serious in its adherence to tenets of scientific ideology, the questionable philosophical assumptions unquestioningly assumed to be part and parcel of scientific truth. This ideology sets the ground rules for acceptable inquiry, for what will count as a question, an issue, or a fact. One such questionable ideological mainstay already mentioned is that talk of consciousness in human or animal is scientifically meaningless. Another highly debatable ideological assumption is that values—especially moral values—have no place in science; science is seen as "value-free." Still another is that only controlled experiment produces scientifically legitimate data—anecdotes, for example, of the sort gathered by Darwin or George Romanes about animal mind are irrelevant to science. Yet another dogma parroted without defense or argument by the authors is the dread charge of anthropomorphism—a charge that scientific practice itself takes with a grain of salt in its actual activity, else research on animals as "models" of humans would be impossible.

The key irony is that, in buying into the scientistic game, the authors have trivialized and needlessly restricted their own area of interest and concern—human/animal interactions. In my view, the sorts of anecdotes we all share about our interactions with animals—and the fact that all humans share them, and immortalize them in literature—tell us more about the human/animal bond than scientistic surveys do. (The authors, predictably, distrust anecdote and common knowledge.) For these stories tell us that animals are important to people, why animals are important to people, and how animals are important to people—what else does one need to know? Perhaps one would like to speculate a bit on what is involved on the animal side of the relationship; but this is forestalled by the injunction against anthropomorphism. Perhaps we need, as I have said before, to document less what animals do for us, and focus instead on the morality of how we treat them—but this is again proscribed by scientific ideology. This is not to suggest that some of the questions listed by the authors at the end of the article should not be addressed. Any sort of new information in any area can only serve us well. But it is a far cry from that truism to the questionable assumption that one needs a "theory" or model of the human/animal bond, developed in a scientific context, or that from the answers to the questions cited an ur-theory will emerge.

I submit that the area of human/animal relationships needs less, not more, scientism. The relevant facts are known and manifest—to cloak them in the trappings of science will only obfuscate their

true importance. If these interactions are the stuff of any science at all—rather than the stuff of literature (or stories), which reveal certain types of truth better than science does—it is not the jargonized, tautologous bean-counting which emerges from this article. From these interactions, rather, might be gleaned a moral science in the eighteenth-century sense—a branch of understanding focusing not only on what is, but on what ought to be. Our relationships with animals are important—common sense, art, and literature all attest to this. Animals are beneficial to humans—again this is unquestionable, and the fact that they lower our blood pressures or cause us to release endorphins does not conceptually add a great deal to what we already know. On the other hand, our relationships with these creatures are morally problematic and fraught with irony and contradiction. The puzzles in our relationships with animals are moral, not factual—what are our obligations to them; is it coherent for them to enjoy the legal status of property while we speak of them as partial persons; if we are indeed bonded with them, are we keeping our end of the bargain (Rollin, 1983)? In addressing these questions, science is of no help and is in fact pernicious both in its ideological neglect of ethics and in its misfocusing of our attention.

In Defence Of Ethology

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Kidd and Kidd have made a useful start at disentangling the present can of worms that constitutes current theoretical reasoning on the subject of animal/human relationships and interactions. Their paper will doubtless stimulate discussion and debate and, thus far, it serves a constructive purpose. As general review of the state of the art, however, it fails to give adequate credit where credit is due, and it contains some surprising inaccuracies. For instance, on two occasions the authors cite earlier work by Martinez and Kidd (1980) as a case in which "people were better off emotionally without pets than with pets." Yet the paper referred to did not actually demonstrate such an effect. It did reveal that membership of multi-purpose service clubs had a positive influence on the well-being of male subjects. But when club members were removed from the data, there were no statistically significant differences in well-being between pet owners and non-owners. Pet ownership probably is detrimental in certain situations, but the example provided does not show this.

As a zoologist, I am not qualified to comment on Kidd and Kidd's treatment of psychological theories which, nevertheless, appears to be curiously selective. But it is difficult not to take exception to their single-paragraph dismissal of the contribution of ethology and animal behavior. They claim, for example, that our knowledge of animal/animal relationships "has limited application for [the study of?] animal/human attachments." Yet modern theories of human attachment (see for example Ainsworth et al., 1978; Bowlby, 1982) owe far more to the work of ethologists such as Tinbergen and Hinde than they do either to Freud or to any other psychological theorist. One line later, they state that ethologists (and they name only three) hypothesize that "animal social behavior endures because it has survival value for the species." In his early days, Lorenz may have been guilty of woolly statements of this kind, but no recent ethologist would condone such a remark. Natural selection operates on individuals, not on species. The authors then maintain that ethologists have focused on "intra- or species-specific rather than inter- or cross-species behaviors and characteristics." They apparently ignore the fact that a vast body of ethological literature is specifically devoted to the subject of inter-specific relationships, ranging from predator-prey interactions and parasitism to any number of symbiotic and mutualistic associations. In truth, ethology and its offspring, behavioral ecology and sociobiology, have probably contributed more to our understanding of the mechanisms and functions of social behavior (both within and between species) than any other discipline.

In the past, psychology, anthropology, and the study of animal behavior evolved, more or less, in isolation; each generating and abiding by its own theoretical constructs. Recently, however, the boundaries between these different disciplines have become increasingly blurred, thanks largely

to people venturing outside their traditional academic domains in search of unifying principles. Perhaps the most fascinating aspect of research on animal-human relationships is its potential for providing a theoretical bridge between animal and human studies. To dismiss the contribution of either one at this stage is surely ill-considered and counterproductive.

AUTHORS' RESPONSE, OR RIPOSTE CINQ RIPOSTE, TO SEEKING A UNIFIED H/CAB THEORY

Aline H.Kidd and Robert M.Kidd

We agreed to Dr. Rowan's request to use an abbreviated version of our article, "Seeking a Unified Theory of the H/CAB," as a springboard for discussion and commentary. It was our hope that its publication would encourage both experts and readers in associated fields of study to consider the need for a unifying theory, and to adduce suggestions for related concepts that would help stimulate others to empirical research in areas often overlooked inadvertently by today's highly specialized investigators. We thus hoped to broaden the framework of research by stimulating as many associated disciplines as possible, because we are convinced that the study of any single discipline shapes the belief system of the student and so determines what topics that particular student will research, how that research will proceed, what data is to be considered factual, how that data is interpreted, and the groups to which the data can be generalized. Although our basic training was psycho-analytic, our research training was, obviously, behavioristic.

We are pleased with the comments we received because they do suggest broader frameworks in which H/CAB researchers can be working, and because they serve as an antidote to our behavioristic approach.

We have little argument with Dr. Messent because his points are so well taken. We agree that it will be difficult, perhaps impossible, to achieve a unitary theory for the H/CAB which will be acceptable to all disciplines involved in this area and, as he says, we are a great distance from having sufficient data. We are convinced, nonetheless, that the search for a theory will stimulate enough research and critical thinking in the field so that the ensuing debates will be both constructive and instructive.

Dr. Lawrence's comments were, interestingly, very much in keeping with our intentions. We were delighted that she located cooperative "non-animal people" and was therefore able to give insights into the important differences between animal and non-animal people; differences we were unable to achieve while researching our personality characteristics of horse, turtle, snake, and bird owners project. We found only three willing non-animal subjects, while she found many non-animal people enthusiastic about being subjects. It is well known that attitudes on any topic vary in different parts of the country, and people in the San Francisco Bay Area may well differ in their attitudes toward pets from people in the eastern U.S. We found a population that idealizes pet ownership and states overtly: "there is something wrong with people who neither want nor own a pet." Even those Bay Area people who speak strongly against any pet ownership at meetings centering on permitting or refusing to permit pets in housing developments will not allow themselves to be labeled as "non-animal" people, perhaps because they fear public negative value judgments. But whatever the reasons for the differences between our subject populations, Dr. Lawrence's findings and conclusions, when she completes her study, will add tremendously to the type of information we are trying to elicit with our paper.

We are not nearly as happy with Dr. Rollin's approach, because it is antithetical and counterproductive to what we hoped to do with our paper. He raises the basic question, which has been debated since the work of such "brass instrument" psychologists as Wundt and Titchener in the late 1800s, of the validity of a strictly empirical approach. Although the debate is still to be found today in the arguments between behavioristic and humanistic psychologists, the sharp division between them has long been blurred by such approaches as the behavioral humanism of Thoresen, and by the fact that behavioral humanists continue to do empirical research.

We roundly disagree with Dr. Rollin, therefore, on the value of a scientific approach to the study of the H/CAB. We do, however, strongly support the need for a moral and ethical approach in all research and agree that we must consider our obligations to all involved animals as well as humans in terms of their survival, their biological needs, and their ability to suffer pain. After all, in much of the world today, women and children, as well as animals, still have legal status only as property, and only in the present century in America have women and children achieved some status as independent beings. We hope that in the future animals will no longer have legal status only as property, but we believe this to be far in the future, even in America.

We disagree with Dr. Serpell's analysis of the Kidd and Martinez article. The first finding was that in this group of subjects, male pet owners in general reported a significantly lower mean on the Well-being Scale of the California Psychological Inventory than did male non-pet owners, which certainly suggests that pet ownership may be detrimental to some men.

His more important point was our very restricted coverage of ethology. We are fully aware that ethology has made major contributions to Attachment Theory (Bowlby, 1982; Ainsworth, 1978), to theories of Altruism in Childhood (Blurton-Jones, 1972; McGrew, 1972), to dominance hierarchies in children's play groups (Hinde, 1983), to problem-solving behaviors in children (Charlesworth, 1979), to theories of aggression (Lorenz, 1966), and to violations of territory displayed in the maintenance of a preferred distance between self and another person (Barash, 1973). Ethology certainly broadens psychology's explanations of certain behaviors by including a longer time span and the history of the species. It focuses on behavior both in terms of immediate function and of more long-term survival value. Ethology concentrates as well on the causes of behavior, including the immediate cause, the interaction of heredity and environment in producing behavior change, and phylogenetic causes.

There are, however, problems with this theory, at least as it applies to human beings. Some concepts appear to be circular, for instance: a child acquires a behavior easily because he is in a critical period, and we know he's in a critical period because he acquires the behavior easily.

There is also a problem with phylogenetic causation. We can check the phylogenetic history of anatomy to some extent from fossils and excavated bones. There are, however, because of the incompleteness of skeletal finds, a number of arguments about the evolutionary progression of humans among anthropologists. But behavior does not leave fossils and bone fragments, so the construction of an evolutionary history of any behavior can be created only by theory.

Among humans, there are ethical limitations on experimentation. We cannot raise babies in silence and isolation in order to determine the genetic components of language (when Frederick II tried this in the 1200s, the babies died), so we are limited to naturally occurring deprivations.

Further, ethology has focused on non-verbal social behaviors. In 1978, Washburn called ethology "the science that pretends humans cannot speak" (p. 414). Because language controls human interactions to a large extent, ethological lack of information about language limits the usefulness of the theory.

Finally, human beings create their own environments by modifying the environments into which they are born. This raises the question of "what *is* the natural environment for humans?" Human environments change from generation to generation. Further, although there are unquestionably important innate biological influences on human behavior, as Skinner (1977) says, "Civilization has supplied an unlimited number of examples of the suppression of the phylogenetic repertoire of the human species by learned behavior." According to Schwartz and Lacy (1982), "We would expect normal human behavior to occur in contexts that have suppressed dominant biological influence."

Thus, while we agree fully that ethology may make important future contributions to a theory or theories of the H/CAB, and that the field can help explain a number of behaviors, we feel that inherited characteristics do not and can not explain all or even most of the data about the Bond.

And while we agree with Drs. Herzog and Burghardt that most fields go through initial stages of observation, description, and taxonomy before

achieving a theory, and that psychology is in need of a unifying theoretical perspective (in fact we wrote a very similar comment in reply to a Katcher and Beck article in the *Journal of the American Veterinary Association* in 1984), the diversity of researchers' fields of interest and the complexity of human/animal bonds is such that it would be easy for people in this area to overlook the eventual need for a theory or theories. We wrote our paper in this spirit; to remind researchers of the need for theory and to stimulate the research that will be necessary before there is any hope that one will be devised.

Like Serpell, Herzog and Burghardt are concerned with our too-brief coverage of ethology. This point has already been discussed in our reply to Serpell.

As for psychoanalytic explanations, we chose to omit them, because in the past two years as jurors for several journals, we have read only two psychoanalytic explanations of the human/animal relationship. Further, the explanations were not supported by any data and seemed logically inconsistent within themselves. Accordingly, we felt unable to include analytic theory at the time of writing.

Although we are of course aware of the principles of dominance, our own research places dominance as only one in a series of personality characteristics important in human/animal relationships. Nurturance, aggression, the need for independence, and the need to be dependent are all as important as dominance. Indeed, nurturance seems to be the most important. We grouped all of these characteristics in our progressive research into the characteristics of pet owners.

We do agree, however, with Herzog and Burghardt's cry for historical and cross-cultural perspectives in any holistic theory of the H/CAB.

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REVIEWS AND RESEARCH REPORTS

CONFERENCE PAPERS

THE EMERGENCE OF MODERN PET-KEEPING

Harriet Ritvo

Nowadays few people feel the need to conceal their affection for their pets. On the contrary, many contemporary English and American households unashamedly include dogs and cats, and the owners of particularly elegant or surprising pets are inclined to flaunt them as symbols of discriminating taste or conspicuous consumption. The economic importance and social respectability of pet-keeping is further attested by the flourishing institutions—from animal hospitals to breed clubs to the pet food industry—that service pets and their owners. A great deal of our society's time, energy, and money is now devoted to satisfying pets' and pet owners' needs, physical and otherwise (Kellert, 1983; Serpell, 1986).

When thinking about the history of household animals, we are often tempted simply to project into the past the conditions that we daily observe in the present. Pets figure so prominently in contemporary American and European life that it is difficult to imagine earlier versions of our societies in which they did not enjoy similar appreciation. Yet if we look back as little as two centuries, the position occupied by domestic dogs and cats begins to seem unfamiliar. One measure of this difference is the paucity of evidence about the relationships between humans and their animal companions. Because household animals were not considered objects of serious inquiry or widespread appeal, few authors and publishers were inclined to spend time and ink on them. These intellectual and economic disincentives were reinforced by more direct social coercion. Individuals who expressed untoward interest in or affection for pet animals might provoke disapproval, contempt, or suspicion.

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An example of the kind of source in which information about eighteenth-century pets is apt to be embedded is the *History of the Ancient and Honorable Tuesday Club,* an extremely long satirical account of a club for upper-class men, which met regularly in Annapolis, Maryland, during the 1740s and 1750s. The author, a Scottish emigrant named Alexander Hamilton, apparently wrote for a restricted audience, since his narrative is only now being prepared for publication. Although the *History* has certain literary pretensions—for example, it is written in a high mock-heroic mode—it is primarily of interest today as a storehouse of social history. As he wryly chronicled the annals of the Tuesday Club, Hamilton touched on a variety of everyday topics, including attitudes toward pets and pet-keeping. For example, one of the leading figures in the Tuesday Club was fond of cats, and the satirist made this predilection the emblem of his target's luxurious and depraved character. The following is an excerpt from what is intended as a biting portrait:

> *This celebrated Gentleman, Judging his own Species, unworthy to make constant companions and Intimates of, Chose a Society of Cats for his friends, fellows and playmates, both at bed and board, and so far did his extraordinary charity and benevolence extend to those Cats, that he would deign to converse with them in the most familiar manner, giving some of them a Christian like education…it is said, that he once buried a favorite Cat, with great form and ceremony, like a Christian…. Some may think it very Strange, that…a Gentleman born and bred in a Christian land, should pay so much deference and respect, to these brute creatures…. In fine, had he been a persian Dervis, who understood thorro-ly the Language of brutes, there might be some plausible reason for his amusing himself in this manner; but as he is an old Englishman,*

and a protestant, and a Christian of the Church of England, as by Law established, there is no other way…for accounting for this odd humor, but by ascribing it to mere whim and fancy…. (Hamilton, in press).

This selection, which is extracted from a much longer diatribe in the same vein, suggests that pet-keeping was not only unusual in the American colonies on the eve of Revolution, but was also an easy target for criticism and ridicule. Other contemporary sources corroborate the low esteem in which pet ownership was held. In England at about the same period Humphrey Morice, a gentleman of some distinction who had served as a Privy Councillor, wished to provide for the maintenance of his aged dogs after he died. Because he feared public opinion, however, he was reluctant to include this bequest in the main body of his will, hiding it instead in a secret codicil, which he cast in the form of a letter to a friend (Harwood, 1928). More generally, the metaphorical or symbolic or connotative penumbra surrounding the dog, which was then as now the archetypal pet species, although not the only one, indicated the low regard in which both animals and their owners might be held. In the eighteenth century the main characteristics attributed to the dog were not the loyalty and affection that predominate in current iconography. Instead, as many of William Hogarth's satiric paintings and engravings demonstrated, the dog was more likely to represent bestiality, vulgarity, and subversion. Thomas Bewick, the author and illustrator of popular works of natural history, wrote that, although the dog was loyal to his master, "to his own species he is ill-behaved, selfish, cruel, and unjust." Earlier still, during the sixteenth and seventeenth centuries, the contrast with modern understandings of the dog's moral nature was still more striking. Shakespeare, for example, seldom referred to dogs except to express his distaste for them and for the people with whom he associated them (Bewick, 1975; Empson, 1951; Paulson, 1979).

It is necessary to emphasize that English and American pets have only recently gained widespread acceptance because it is so easy to assume the reverse. Americans routinely think of their own culture, and especially the part of it that derives from Great Britain, as one that embodies a unique, intrinsic, and immemorial fondness for animals. English self-stereotypes echo this point of view. Thus when a publican in the western part of England was recently prosecuted under the anti-cruelty laws for advertising hedgehog-flavored potato chips, the media on both sides of the Atlantic reported it as typical, lovable English dottiness. And there is more solid, less anecdotal evidence for this understanding of Anglo-American attitudes. For example, the institutionalized animal protection movement originated in Great Britain with the foundation of the (not yet Royal) Society for the Prevention of Cruelty to Animals in 1824; the Cruelty to Animals Act of 1876 pioneered state regulation of animal experimentation (French, 1975; Turner, 1980). But this heightened sensitivity to animal suffering did not develop in a vacuum; the activists who crusaded on behalf of their fellow creatures were inspired not by benevolent abstractions but by repeated observation of violent physical abuse. However early nineteenth-century Britons may have stacked up in relation to the citizens of other nations, most of them were more notable for their indifference to animal pain, or even their enjoyment of it when it came in the guise of such sports as dog fighting, badger baiting, or rat killing, than for their abhorrence of cruelty to their fellow creatures (Ritvo, 1987).

Thus the tradition of extravagant British concern for animals, like many other apparently ancient usages, turns out to have been a Victorian creation (Hobsbawm and Ranger, 1983). Although at the end of the nineteenth century a humanitarian crusader named W.J.Stillman could celebrate the strength, "especially in Anglo-Saxon countries," of "this sentiment of tenderness for…the sentient lower creatures," English self-characterizations of only slightly earlier offered quite a different impression. In the 1830s, for example, the naturalist Edward Jesse wrote that "of all the nations of Europe, our own countrymen are, perhaps, the least inclined to treat the brute creation with tenderness," and in 1868 Queen Victoria, who was herself both an enthusiastic partisan of animals and a devoted pet owner, complained that "the English are inclined to be more cruel to animals than some other civilized nations are." Even after the Victorian period, some

human victims of oppression, especially women, but also members of the lower classes, found an easy metaphor for their sufferings in those routinely inflicted on laboratory animals (Jesse, 1835; Stillman, 1899; Hibbert, 1984; Lansbury, 1985).

In the unpropitious emotional or moral climate of pre-Victorian Britain (although most of the following refers specifically to Britain, it also applies to the history of pet-keeping in America, where, at least through the nineteenth century, developments tended after a slight time lag to parallel those across the ocean), it is perhaps not surprising that few people kept pets. That is, although domesticated animals, including dogs and cats, had been part of many households from Saxon and Celtic times, almost all of these creatures were kept because they performed some useful function, not simply because they were affectionate or ornamental. A sixteenth-century listing of English dog breeds divided the animals by function: for example, "Fynder," "Stealer," "Turnspit," and "Dancer" (Caius, undated). Even dogs that kept relatively elevated human company, such as those that appeared with their masters in the formal portraits of the seventeenth and eighteenth centuries—portraits are often adduced as evidence of the antiquity of pet-keeping—were not pets, but rather hunting dogs like setters and spaniels or, more rarely, coursing dogs like greyhounds.

Nevertheless, pet-keeping did have a long history among certain kinds of people. A medieval example, admittedly fictional but representative of a trend among her small group of peers, was the privileged prioress of Chaucer's fourteenth-century *Canterbury Tales,* who traveled with "smale houndes" that she fed prodigally "with rosted flessh, or milk." In Chaucer's view, and in that of the ecclesiastical authorities of his day, who tried to suppress pet ownership among monks and nuns from affluent backgrounds, such behavior was inappropriate. Despite this official censure, however, pet-keeping among the very privileged did not disappear, and, a century and a half later, the secular ladies attending the court of Henry VIII were allowed to bring their dogs (Thomas, 1983). Beginning in the seventeenth century the owners of estates occasionally erected monuments in memory of deceased animals, although it is usually difficult to tell from the surviving inscriptions whether the commemorated animal was a genuine pet or merely a loyal servant (Lambton, 1985). And during the latter part of the seventeenth century, King Charles II was renowned—or perhaps notorious—for doting on lapdogs, and his fondness has been preserved in the name of one of the major varieties of toy spaniels. When his pets were stolen, as seems to have happened with some frequency, he was inconsolable; once he went so far as to advertise in a newspaper for a favorite's return. (He may have been one of the first to avail himself of this method of repairing his loss, since newspapers were a recent innovation at that time.) Charles' brother and successor, James II, also enjoyed pet dogs, as did his successors, William and Mary. During their joint reign the pug, which was, like William, a native of the Netherlands, became established as the preferred lapdog of the English aristocracy (Ritchie, 1981).

What these early pet owners had in common was privileged status in terms of both money and rank. This meant, on the crudest material level, that they could afford to maintain animals that did not earn their keep. It also gave them sufficient independence to ignore any criticism or derision that might be directed their way. And on a deeper level, they may have enjoyed a metaphorical security—a feeling of supremacy over nature—that was as unusual as was their exalted social position. For animals, even heavily domesticated pet animals, have always symbolized the natural world, and incorporating one into the intimate family circle would have presupposed an attitude of trust and confidence that few ordinary English citizens of the sixteenth, seventeenth, and even much of the eighteenth centuries were able to muster. Pet owners probably saw the non-human world as a less threatening and more comfortable place than did most of their contemporaries, who understood their relationship with the forces of nature primarily as a struggle for survival. That is why pet-keeping did not become a widely exercised prerogative until this struggle had been sufficiently mediated or attenuated by scientific, technological, and economic developments. Only at that point could ordinary people interpret the adoption of a representative of the elements (however tame and accommodating) as reassuring evidence of human power, rather than as a

troublesome reminder of human vulnerability (Passmore, 1975; Shell, 1986; Thomas, 1983).

Thus it is not surprising that widespread pet ownership among members of the middle classes can be dated from the late eighteenth and early nineteenth centuries. This period saw a series of radical changes in the general relationship of human beings (at least European human beings) to the natural world. Whereas at the beginning of the eighteenth century natural forces had been perceived as largely out of human control, by the end of the century science and engineering had begun to make much of nature more manageable. Advances in natural history, and especially in taxonomy, signaled an increase in human intellectual mastery. On a more pragmatic level, progress in such fields as animal husbandry, veterinary science, and weapons technology made those who had to deal with animals less vulnerable to natural caprice. These technical developments were paralleled in the political sphere by the increase of English influence in those areas of the world—Asia, Africa, and North America—where nature was perceived to be wildest. Once it had become the subject of domination rather than a constantly menacing antagonist, nature could be viewed with affection and even, as the scales tipped more to the human side, with nostalgia. This shift had consequences throughout western culture. For example, the art and literature of this period show an increasing aesthetic appreciation for wildness, which had previously been castigated as ugly, as well as new sympathy for peripheral experiences and points of view, including those of animals, as well as of the poor and of the human inhabitants of exotic territories.

In the less elevated sphere of the home, more and more people—especially members of the middle classes, which had especially benefited from the advances of the eighteenth century—indulged in sentimental attachment to pets as it became clear that they represented a nature that was no longer threatening. There are many indices of the increase in companion animals, especially dogs, from about the beginning of the nineteenth century. None of these indices is individually conclusive, but together they seem persuasive in their chronological location of the transition. For instance, the returns from the dog tax, originally imposed as a revenue measure during the Napoleonic wars, grew steadily. Publishers discovered a new market for books about dogs where none had previously existed; in addition, periodicals devoted generally to country sports began to feature dogs more prominently. Finally, well into the Victorian period, the official institutions of dog fancying appeared. The first formal dog show was held in Newcastle in 1859; the Kennel Club was founded in 1873, to be followed by a host of clubs devoted to individual breeds; and the first canine *Stud Book* appeared in 1874. Parallel organizations for cats appeared within a few decades (Ritvo, 1987).

Although it was pervasive, the shift in attitudes that encouraged the expansion of pet ownership among ordinary people was not conscious. That is, when people, either in the nineteenth century or, for that matter, at more recent periods, decided to acquire pets, they did not do so with the conscious intention of reenacting a scenario of human conquest and control of nature. Instead, the voluminous Victorian literature of pet-keeping was saturated with the sentimentality characteristic of the period; at least on the surface it was a literature of love rather than one of domination. But this love presupposed, and even celebrated, a satisfactory resolution of the struggle between nature and civilization. Indeed, not only did the conquest of external nature make it possible for many people to own pets, but the safe, captive, and loyal pet reciprocally symbolized the appropriate relation between humans and nature under the new dispensation. One of the underlying attractions of pet ownership may have been the opportunity it offered people to express those unacknowledged or even subconscious understandings. An examination of a few of the standard concerns of enthusiastic nineteenth-century pet owners reveals that beside the rhetoric of affection and admiration in which they routinely described their relationships with their animals ran another rhetoric, one expressed in action as well as in language, that was explicitly concerned with power and control.

For example, many pet-keepers were producers as well as consumers of animals. The whole enterprise of maintaining and improving breeds embodied a metaphorical assertion of domination; the breeder assumed an almost godlike role in planning new variations. And on a more literal

level, any attempt at breeding, at least unless pet owners were content to abandon their aspirations and let their animals be guided entirely by their own inclinations, immediately provoked a contest between human will and natural proclivities. On the most literal level, enforcing a predetermined choice of mate required close physical control of one's animal. Thus the fact that it was impossible to disengage dogs that managed to evade attempted restrictions was particularly troublesome, because it could produce a prolonged and public display of resistance to human authority. "Where they are permitted to run about and appear in such a state before the habitations of the respectable…it is a most disgusting shameful spectacle," objected one early nineteenth-century chronicler, who was motivated by disciplinary as well as prudish concerns; he continued, "there is, perhaps, no nuisance that stands more in need of compulsive correction" (Taplin, 1803). To prevent such unedifying performances, bitches had to be locked up when they were in heat. Like masters whose moral standards for their families and servants were too lax, owners who neglected this responsibility failed in their duties to the community. (This was not the only way in which the exercise of authority over the natural world became metaphorically confounded with dominion within the human sphere.) The "quantities of bastards [canine bastards were meant here, but the ambiguity was not completely accidental], and the dwindled breed of Pointers and Setters" could be laid to the account of pet owners who exercised insufficient surveillance (Thornhill, 1804).

And physical isolation was not enough; if possible, bitches' sentiments and imaginations had to be controlled as well. An eminent Victorian dog fancier recalled a Dandie Dinmont terrier whose wayward emotions made her useless for breeding; she "became enamoured with a deerhound, and positively would not submit to be served by a dog of her own breed." Even bitches who were more compliant might defeat their owners' purposes, if they were allowed so much as to look at attractive dogs of different breeds. Delabere Blaine, who was sometimes known as "the father of canine pathology," had a pug bitch whose constant companion was a white spaniel. He claimed that all her litters were sired by pugs, and all consisted of undeniably pug puppies—but that in tribute to her infatuation one puppy in each batch was white, a color that was not desirable in pugs (Dalziel, 1879).

If ensuring that pets consorted only with their chosen mates represented a victory over nature on its own terms—that is, overpowering it by brute force—the kind of manipulation involved in deciding which animals to pair exemplified a triumph of human intelligence. Thus aficionados of many modern dog breeds point with pride to their dogs' ancient origins, but in fact almost all of these origins were fabricated by nineteenth-century dog fanciers in search of distinctions that could be ratified by an elaborate hierarchy of pedigrees and dog show awards. Even the few breeds for which there is significant pre-nineteenth-century evidence, such as the toy spaniel, were transformed so radically by Victorian breeders as to practically obliterate their genetic connection with their alleged forebears. Most so-called traditional breeds simply did not exist as breeds in the modern sense of race or strain at all. For example, the word "bulldog" is old, but until the nineteenth century it referred to dogs that performed a particular function—that is, attacking tethered bulls—rather than to dogs that shared a particular ancestry or set of physical characteristics (Lytton, 1911; Ritvo, 1986). Thus Victorian dog fanciers were working with a relatively clean slate when they set out to develop breed standards. And the standards they developed suggest that what they valued was arbitrariness—the ability to produce animals with surprising or unnatural characteristics. Often the rarest traits, meaning those that were furthest from a strain's inherent inclinations and so offered the strongest evidence of the breeder's influence, provoked the greatest admiration; conversely, typical animals—that is those that displayed traits that would probably have been manifest without human interference—were frequently dismissed as merely mediocre.

Fortuitously, as the most plastic of domesticated animals, dogs were particularly vulnerable to this kind of manipulation; indeed, it was occasionally suggested that their genetic malleability was the gratifying physical analogue of their temperamental eagerness to serve their human masters. Thus, the inclination to celebrate animals that

exemplified the human ability to reconstruct had an influence on the character of breed after breed. For example, until bull-baiting was outlawed in 1835, bulldogs were simply dogs of any appearance and ancestry with sufficient courage, strength, and ferocity to hold their own against outraged bulls. It is not surprising that bulldogs of this sort became uncommon once their primary function was abolished; but it may be somewhat surprising that animals of the same name reappeared as popular pets toward the end of the century. However, the terms in which the resurgent bulldogs were described strongly suggested that their connection with their bloodthirsty namesakes was rather tenuous. They were said to be more pampered than other breeds, more "delicate" as puppies, and so indolent that it was necessary to coax them to eat. In disposition, they were alleged to be "peaceable" and "intelligent," also qualities for which their predecessors were seldom celebrated (Anon., 1894; Davies, 1905; Lane, 1900; Pybus-Sellon, 1885). In physical character, the revived bulldogs also reflected the arbitrary manipulations of breeders rather than any adaptation to function. So apparently random were the standards prescribed for the breed that outsiders had great difficulty in making sense of them. Thus, although much printed advice about bulldog breeding was available, a correspondent who said he had "only quite recently entered the Bulldog Fancy" implored the editors of the *Sportsman's Journal and Fancier's Guide* to publish a brief description of "the points, general make and shape…of the bulldog" (Anon., 1879).

A sample of what this gentleman was up against was the Dudley nose question, which convulsed the Bulldog Club for over a decade. Dudley, or flesh-colored, noses occurred in some strains of fawn-colored bulldogs, usually in conjunction with light eyes and a yellowish face. In 1884, the Club voted to exclude all dogs with Dudley noses from competition, narrowly defeating a counterproposal that Dudley noses be considered mandatory in fawn bulldogs (Farman, 1898). This issue was fought on aesthetic grounds, but breeders could be similarly whimsical in their selection of traits that had more serious pragmatic implications. Thus in the 1890s the conformation referred to as being "well out at the shoulder" became standard among well-bred bulldogs. Any dog lacking this feature was doomed to mediocrity in the eyes of show judges, but those lucky enough to display it were likely to end up as seriously crippled as Dockleaf, a renowned champion of this period, who could not walk two miles without collapsing (Anon., 1891a; Lee, 1893).

Almost every dog breed provided occasion for this kind of arbitrary display of human ability to manipulate. The collie, which Queen Victoria's partiality made the most popular I ate-nineteenth-century dog breed, was also reconstructed to serve the figurative needs of fanciers. Collies were originally valued for the qualities they had developed as hard-working Scottish sheepdogs—intelligence, loyalty, and a warm shaggy coat. But once they were ensconced in the *Stud Book* and in comfortable homes, breeders began to introduce modifications and "improvements." As pedigreed collies became more numerous, breeding fashions became more volatile; breeders redesigned their animals and restocked their kennels in accordance with the latest show results. For example, the 1890s saw a craze for exaggerated heads with long, pointy noses, despite the objections of some conservative critics. In 1891, a *Kennel Gazette* reviewer complained that show judges had given all the prizes to "dogs of this greyhound type whose faces bore an inane, expressionless look." Others alleged that such dogs could hardly display the intelligence characteristic of their breed because there was "no room in their heads for brains" (Anon., 1891b).

Thus breeding offered dog owners the chance to stamp canine raw material with designs of their own choosing; it was a continually repeated symbol of the human ascendancy over nature. (Cat fanciers tried this too, but feline raw material proved much less pliable. This may explain, at least in part, the relatively limited popularity of pet cats during the nineteenth century.) And the theme of control surfaced more explicitly in connection with other pet-related issues. The relatively close co-existence of a large animal population and a large human population inevitably produced conflicts and problems that could only be resolved by regulation. But such regulation often seemed to address issues much more complex and far-reaching than was required merely to

eliminate (usually canine) nuisances. Disciplining animals could be confounded with disciplining people, and the regulation in question might easily become the occasion for an unacknowledged redefinition of the boundaries of civilized or responsible society. Unreliable or inadequately disciplined groups of human beings could be grouped with animals rather than with their more respectable conspecifics; thus they frequently replaced nature as the object of manipulation.

Throughout the nineteenth century, for example, even as pets were made increasingly welcome at respectable domestic hearths, the pets of the poor were castigated as symbols of their owners' depravity—an unwarranted indulgence that led them to neglect important social duties. A typical complaint criticized colliers who "have more dogs than they know what to do with" and "starve their children and feed their dogs on legs of mutton." In addition, pet dogs were alleged to intensify the squalor of impoverished accommodations. An eminent veterinarian painted a distressing picture that conflated physical and moral contamination: "currish brutes…living with their owners in the most miserable and badly ventilated dwellings…and contributing to make these dwellings still more insalubrious by absorbing their share of the oxygen…and poisoning the atmosphere by their filthiness" (Anon., 1897; Fleming, 1872). Thus reformist critics presented their efforts to deprive the poor of their pets as straightforward humanitarian efforts on behalf of suffering people and animals. But the juxtaposition of such efforts with explicit attempts to regulate the behavior of lower class humans suggests an additional dimension. For example, the regulations governing the Peabody Model Dwellings, part of a paternalistic late Victorian scheme to assist the worthy poor, combined prohibitions against keeping dogs with similar strictures forbidding hanging out laundry, papering the walls, and children playing in the corridors. By defining pets as an inappropriate luxury, which the poor had neither the financial means to support nor the moral means to control, more respectable members of society may have implied that pet-keeping was presumptuous for members of the lower classes (Jones, 1984). The underlying symbolism of domination may have defined pet ownership as the prerogative only of those whose social position justified some analogous exercise of power over their fellow human beings.

These examples and speculations may help explain why large numbers of ordinary people did not begin to keep pets until something under two hundred years ago. With only slight extrapolation, they may also suggest why England, beginning in the last century, and the United States in the current century have been distinguished for the number of pets cherished by their citizens as well as for the generosity with which many of these companion animals are treated. Along the same lines, it is not surprising that the protection of wild animals first emerged as an issue in late Victorian Britain and attracts its most energetic and sustained contemporary support in North America and Europe (Doughty, 1975; Fitter and Scott, 1978). The concept of pet is not inevitably limited by species; pets do not even have to share our domiciles. Pets can also be understood as animals to which we maintain a certain relationship of domination mixed with responsibility and generosity (Tuan, 1984). So defined, pets may prove to be nearly ubiquitous. We have now entered a new transitional period in our relation to the natural world, when we exercise power to an extent undreamed of at the beginning of the nineteenth century; most animals, not just those we have chosen to domesticate, depend upon us for their very existence.

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PET-KEEPING IN NON-WESTERN SOCIETIES: SOME POPULAR MISCONCEPTIONS

James A.Serpell

Summary. *Throughout history the world's wealthy and ruling classes have demonstrated a powerful affinity for pets. In the modern West, the recent growth of pet populations has coincided with rising standards of living. This apparent association between pet-keeping and material affluence has helped to create the false impression that pet-keeping is an unnecessary luxury—a frivolous invention of the idle rich—which is of little social or cultural significance.*

The assumption that companion animals serve no useful purpose is prevalent in the field of anthropology. Although the practice of capturing, taming, and keeping wild animals for companionship is widespread among hunting and gathering and simple horticultural societies, it has only rarely been studied or even described in any detail, and explanations for its existence are often strangely contrived. Admittedly, a certain confusion surrounds the meaning of the term "pet." Social anthropologists and historians have undoubtedly devoted considerable attention to the use of animals as adornments, emblems of status, religious symbols, or even as educational "toys." The word "pet" has been applied in each case. They have not, however, managed to explain satisfactorily why so many non-affluent cultures nurture and cherish companion animals without any obvious ulterior motives in mind. Indeed, they have tended to evade the issue by turning it on its head. Rather than tackling the reasons why such societies should keep companion animals at all, they have addressed, instead, the question of why these societies do not kill them and eat them—as if the only sensible reason for keeping an animal is in order, ultimately, to devour it.

Research in other disciplines within the last fifteen or so years has begun to shed light on the potential social, emotional, and recreational value of companion animals in human society. Recognition of the fact that pets are not, after all, entirely useless may help to promote a more open-minded approach to what is a fascinating and, alas, fast vanishing aspect of tribal culture.

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INTRODUCTION

Popular beliefs and misconceptions about why people keep pets take a variety of forms. Probably the most widespread is the idea that pets are merely ersatz and, by inference, inferior replacements for human relationships, and that the people who keep pets must therefore be, in some way, socially or emotionally inadequate. The perception of pets as "child substitutes" is also roughly subsumed by this theory. Another even more disparaging view of pets sees them essentially as an artful collection of social parasites who inveigle themselves into human affections by manipulating and subverting our so-called parental instincts. By implication, then, pet owners are the victims of their pets in the same sense that sick people are often the victims of disease (Serpell, 1983, 1986). Finally, there is the belief that pet-keeping is basically a pointless and unnecessary luxury; a mere by-product of Western wealth, which, while not directly harmful, is nevertheless wasteful in terms of emotional and material resources. The present paper explores the historical origins of this latter idea, and re-examines some of the erroneous assumptions upon which it is based.

THE HISTORICAL LINKS BETWEEN PET-KEEPING AND WEALTH

In Europe since classical times there has been an apparent class distinction between those who did and those who did not keep animals as pets. It is clear, for example, that the gentry and nobility of ancient Greece kept pets, since the practice was the subject of a certain amount of popular satire at the time. One of the fictional characters invented by the author Theophrastus (372–278 BC) kept

monkeys and apes, a Maltese dog, and a tame jackdaw for whom he purchased various toys and accessories. According to Plutarch the Athenian aristocrat, Alcibiades, once paid 70 minae for a dog—more than 20 times the value of a human slave—whose long and gorgeous tail he cut off merely to shock people (Halliday, 1922). The early Greek inhabitants of Sybaris in southern Italy, whose name has since become a byword for luxury and opulence, were also besotted with lapdogs, taking them to bed with them and carrying them about wherever they went, even to public baths. Like the Greeks, the Roman upper classes were also extravagantly fond of their companion animals. The poets Ovid, Catullus, and Martial all wrote lyrical verses in praise of people's pets; the Emperor Hadrian buried his favorite dogs beneath monumental tombstones, and the daughter of Drusus adorned her pet turbot—a kind of flatfish—with gold rings. Not to be outdone, the orator, Hortensius, apparently burst into tears when his turbot suddenly expired (Halliday, 1922; Merlen, 1971; Penny, 1976).

From the Middle Ages onward we find much the same sort of thing; the aristocracy and the ecclesiastical elite lavishing attention on their pets while largely ignoring the unenviable plight of the ordinary working population. Thomas à Becket and many other senior clergymen, for instance, frequently kept dogs and monkeys in their chambers, and we are informed by one chronicler of the period that this was the custom among prelates "for occasionally dispelling their anxieties" (Labarge, 1980). Convents and nunneries were often overrun with "birds, rabbits, hounds and such like frivolous creatures" to which, according to William of Wykeham, the nuns "gave more heed than to the offices of the Church." Often these monastic pets belonged to aristocratic ladies who lived for various periods of time within convents (Ritchie, 1981). Throughout medieval Europe, lapdogs and cats which were of little, if any, utilitarian value were kept in most baronial households. Noble ladies carried them about in their arms and fed them with morsels of food from the table; a habit deplored by contemporary writers on etiquette who vainly insisted that it was impolite to fondle animals at mealtimes (Labarge, 1980). By the sixteenth century, lap dogs were all the rage among the upper crust of English society. In his commentary in Holinshed's *Chronicles of England, Scotland and Ireland,* William Harrison describes these dogs, somewhat sarcastically, as:

> *little and prettie, proper and fine, and sought out far and neere to satisfie the nice delicacie of daintie dames, and wonton women's willes; instruments of follie to plaie and dallie withall, in trifling away the treasure of time (Jesse, 1866).*

Mary Stuart, also known as Mary Queen of Scots, may have played an important part in setting contemporary pet-keeping trends by surrounding herself with an entourage of tiny dogs, some of whom she dressed in blue velvet suits to keep them warm in winter. She was so attached to at least one of these animals that she went to the scaffold with it carefully concealed beneath her petticoats (Jesse, 1866; Szasz, 1968). She also founded an entire dynasty of dog-loving monarchs who ruled Britain for over a century. Her son James I, his son Charles I, and Charles's three children, Charles II, James I, and Mary, were all enthusiastic dog owners. Indeed, Charles II's fondness of dogs, particularly the little spaniels that now bear his name, was almost as notorious as his exploits with the ladies. Dogs overran the palace during his reign, inspiring one courtier to remark, "God save your Majesty, but God damn your dogs" (Ritchie, 1981). The royal pet-keeping tradition has, of course, been maintained ever since. Queen Victoria had many dogs, including a pair of Pekingeses sent to her by the Dowager Empress of China, and the present monarch, Elizabeth II, is world-famous for her ever-present coterie of corgis.

Pet-keeping among the ruling classes was not by any means a purely European phenomenon. For at least a thousand years, the Emperors of China, for example, kept dogs and, less often, cats in their royal apartments, and ennobled them with the ranks of senior court officials. Under the Manchurian Ch'ing Dynasty the ancestors of the modern Pekingese enjoyed a privileged status unrivaled by any other variety of pet before or since. They were given the titles of princes and princesses, and huge personal stipends were set apart for their benefit. As puppies they were suckled at the breasts of human wet nurses, and as adults they were attended by a retinue of hand-picked servants. A special elite corps of royal eunuchs

Figure 1. King M'tesa of Uganda walking with his dog (From: The original drawing by J.H.Speke. 1863. Journal of the Discovery of the Source of the Nile, 292. *London: Blackwood.)*

was also created to supervise their overall care and husbandry (Dixie, 1931). Japan also had its fair measure of dog-loving rulers. During the seventeenth century, one Shogun became so enthusiastic that he provided food and shelter for about 100,000 dogs. The cost of caring for these pets overburdened the national Exchequer, produced inflation, and resulted in an unpopular new tax on farmers (Watts, 1985). Even Africa was not exempt from this form of extravagance. When John Hanning Speke visited Uganda in 1862, he found the palace of King M'tesa infested with pets of every description. The King himself was particularly fond of a small white dog, which followed him around attached to a piece of string (Speke, 1863).

During the course of the last century, pet-keeping has gradually achieved full emancipation in the Western world, and ownership of companion animals is now fairly evenly distributed across all social classes (Messent and Horsfield, 1985). But, again, this proliferation of pets in modern industrial societies has been accompanied by a steady increase in human living standards, and many would argue that this is sufficient evidence on its own that pet-keeping is a mere by-product of Western affluence; a self-indulgent waste of emotional and material resources that would be better spent in service of underprivileged human beings (see Szasz, 1968; Baxter, 1984). This view of pets has been around for a considerable period of time.

The Roman writer Plutarch, for instance, was among the first to voice his disapproval of pet-keeping in precisely these terms:

> *Caesar once, seeing some wealthy strangers at Rome, carrying up and down with them in their arms and bosoms young puppy dogs and monkeys, embracing and making much of them, had occasion not unnaturally to ask whether the women in their country were not used to bear children; by that prince-like reprimand gravely reflecting upon persons who spend and lavish upon brute beasts that affection and kindness which nature has implanted in us to be bestowed on those of our own kind (Halliday, 1922).*

Similarly, when William of Wykeham criticized the nuns of Romsey Abbey for keeping pets in 1387, he noted that these animals were devouring alms which should have been given to the poor (Ritchie, 1981), William Harrison, writing in the sixteenth century, was more blunt. He described the nobility as wanton, idle, and corrupt because of their pet-keeping activities, and he then went on to deliver a scathing attack on "people who delight more in their dogs that are deprived of all possibilitie of reason, than they do in children that are capable of wisdome and judgement. Yea, they oft feed them of the best, where the pore man's child at their dores can hardlie come by the worst" (Jesse, 1866). Moral diatribes of this kind against pets did not fall entirely on deaf ears. According to one account, a pious Elizabethan lady called Katherine Stubbes deeply repented all the affection she had shown her pet dog. On her deathbed she is reported to have said to her husband:

> *…you and I have offended God grievously in receiving many a time this bitch into our bed; we would have been loath to have received a Christian soul…into our bed, and to have nourished him in our bosoms, and to have fed him at our table, as we have done this filthy cur many times. The Lord give us grace to repent it (Thomas, 1983).*

Figure 2. English witches and their familiars. (From "The Wonderful Discoverie of the Witches of Margaret and Phillip Flower," 1619.)

In other words, because of its apparent association with wealth and social inequality, pet-keeping has unwittingly become one of the more potent symbols of man's inhumanity to man; conjuring up visions of villainous and despotic rulers doting over plump little lap dogs while their unfortunate subjects perished from neglect, starvation, and disease.

The issue is clearly an important and emotional one, but there is a grave danger of allowing such powerful images to distort our perceptions of the whole phenomenon. The assumption that pet-keeping is a trivial and wasteful spin-off of material wealth rests on the notion that poor or non-affluent people do not keep pets. Even in Europe this was not always the case. During the sixteenth and seventeenth centuries pet-keeping was probably relatively commonplace among the poorer classes, although whenever it was detected it aroused grave suspicions. At the time of the English witch trials (1570–1700), for example, the possession of an animal pet or "familiar" was frequently used as evidence for accusations of necromancy, and most of the victims of this persecution were elderly and financially impoverished (Serpell, 1986). This antipathy for pets was certainly not motivated by any economic considerations. It arose because, at the time, affectionate relationships between people and animals were regarded as immoral. Indeed, one moralist of the period explicitly condemned "over familiar usage of any brute creature," presumably out of the curious but popular conviction that such intimate contacts with animals could somehow brutalize or dehumanize people (Thomas, 1983). Elsewhere in the world, the links between pet-keeping and obvious symptoms of material affluence were even more tenuous than they were in Europe.

PET-KEEPING IN TRIBAL SOCIETIES

When European explorers first set out to investigate the uncharted regions of the world between the sixteenth and nineteenth centuries, they were

generally astonished to find the homes and villages of the native inhabitants infested with pets of every description. Early accounts of the Indians of North America, for example, describe how these peoples kept tame raccoons, moose, bison, wolves, bears, and innumerable other species as pets, and how they loved and fondled their dogs with every sign of affection (Hernandez, 1651; Galton, 1883; Linton, 1936; Elmendorf and Kroeber, 1960; Mooney, 1975). The relationship between the Indians and their companion animals does not appear to have been fundamentally different from that which we associate with the modern West. Writing in the eighteenth century, for instance, Sir John Richardson noted that "the red races are fond of pets and treat them kindly; and in purchasing them there is always the unwillingness of the women and children to overcome, rather than any dispute about price" (Galton, 1883). He also observed that the women gave their bear cubs milk from their own breasts—not a practice one sees very often in Western societies!

In South America, animal-taming and pet-keeping were even more popular. Two early Spanish explorers reported that although the Indian women kept tame birds and animals in their huts:

> *…they never eat them: and even conceive such a fondness for them that they will not sell them, much less kill them with their own hands. So that if a stranger who is obliged to pass the night in one of their cottages, offers ever so much for a fowl, they refuse to part with it, and he finds himself under the necessity of killing the fowl himself. At this his landlady shrieks, dissolves into tears, and wrings her hands, as if it had been an only son (Juan and Ulloa, 1760).*

The list of animals tamed and kept by these Indians covered virtually all of the common birds and mammals available to them. The nineteenth-century English naturalist, Bates, mentions "twenty-two species of quadrupeds" that he found living tame among the villages of the Amazon basin (Galton, 1883), and the anthropologist Roth (1934) described how the women would "often suckle young mammals just as they would their own children; e.g. dog, monkey, opposum-rat, labba, acouri, deer, and few, indeed, are the vertebrate animals which the Indians have not succeeded in taming."

Ironically, the intrusion of Western society and values into South America has brought about a decline in pet-keeping along with the native cultures practicing it. The more remote tribes, however, still retain the habit. The Caraja people of Brazil, whose lands are now threatened by a massive development project, were, according to a visitor in the 1930s, devoted to their pets:

> *The villages swarmed with livestock. At nightfall parrots warred with scrawny poultry for roosts along the roof-pole. Pigs, and dismal dogs, and fantastically prolific cats, and tame wild ducks wandered in and out of the huts through holes in the wall. In almost all of the northerly villages cormorants paddled among the litter round the cooking fires; sometimes their sombre plumage had been decorated by the children with tufts of red arara's feathers fastened to their wings (Fleming, 1984).*

The Warao, who live around the mouth of the Orinoco River, keep wild birds, monkeys, sloths, rodents, ducks, dogs, and chickens as pets (Wilbert, 1972) and, according to the anthropologist Basso (1973), the Kalapalo Indians of central Brazil maintain a particular affection for pet birds. She describes the relationship between the Kalapalo and their birds as similar to that between human parents and their children. The birds are fed, reared, and protected within the confines of the house, and are often kept in seclusion, like human adolescents "to make them more beautiful." Pet-keeping also remains one of the principal leisure activities of the Barasana Indians of eastern Colombia. Rodents, dogs, parrots, and a huge variety of other large and small birds are the most common pets, although tapir, peccary, ocelot, margay, domestic cats, and even jaguars are also kept in small numbers. The women suckle puppies and hand-feed other young mammals; they also masticate plant foods such as manioc and banana to feed to their tame parrots and macaws. One individual was also observed to spend several hours each day catching small fish to feed a tame kingfisher. According to the Cambridge anthropologist, Stephen Hugh-Jones, who has studied these people for many years, Barasana pet-keeping is not motivated by any practical or economic considerations. These people simply enjoy looking after and caring for their pets. The animals are a continual source of

discussion and entertainment, and are treated as an integral part of the community (Hugh-Jones, pers. comm.; Serpell, 1986).

It is important to emphasize that affection for pets within such societies is largely independent of economic considerations. Although many of the species kept as companion animals were also hunted and killed for food, these same species were exempt from slaughter once they had been adopted as pets. Referring to the Indians of Guiana, Roth (1934) is quite firm in stating that "the native will never eat the bird or animal he has himself tamed any more than the ordinary European will think of making a meal of his pet canary or tame rabbit." Such inhibitions were equally strong in societies where the animal involved was also raised commercially as an item of food. In Hawaii, for example, dogs were commonly raised for the pot, but pet dogs were rarely slaughtered or consumed, and never without loud protests from the owner (Luomala, 1960). Even when well-intentioned Europeans pointed out the potential economic uses of pet animals, few of these cultures took their ideas seriously. The Caraja, for instance, refused to sell some of their pet parrots regardless of how much visitors were prepared to pay for them. And they treated the whole concept as a joke when it was suggested that they train their pet cormorants to catch fish by fastening rings around their necks: "In conception, rather than in execution, this project amused them very much; it is clear that they thought of the birds always as guests, never as servants" (Fleming, 1984).

Yet despite the apparent absence of economic motives, many early explorers and later anthropologists seemed determined to believe that utilitarian considerations were somehow involved. The Swedish explorer Lumholtz (1884), for example, observed that the Australian Aborigines were absurdly fond of their pet dingoes, rearing them:

> *…with greater care than they bestow on their own children. The dingo is an important member of the family; it sleeps in the huts and gets plenty to eat, not only of meat but also of fruit. Its master never strikes, but merely threatens it. He caresses it like a child, eats the fleas off it, and then kisses it on the snout.*

The only rational explanation he could think of to account for this bizarre (from his perspective) behavior was the fact that the dingo "is very useful to the natives, for it has a keen scent and traces every kind of game." More than eighty years later, anthropologists were attempting to make the same connections. Harrison (1965) states that the Dyaks of North Borneo "literally *love* their dogs" in return for this animal's aid in hunting, and Cipriani (1966) likewise accounts for the Andaman Islander's "inordinate love of dogs" by the fact that dogs meant "invariable and abundant success in the hunt." But clearly, as the plight of modern factory-farmed livestock testifies, mere economic utility provides no guarantee of affection. The B'Mbuti Pygmies of Zaire, for instance, almost invariably hunt with dogs. Yet they have a reputation for treating their canine companions with pointless brutality (Singer, 1968). Conversely, the Comanche of North America were besotted with their dogs, although these animals had no economic value whatsoever (Linton, 1936).

Figure 3. Punan Dyak with his dog—affection for these animals is widespread in tribal societies (From: Harrison, 1965. Reproduced by Permission of the Council of the Malaysian Branch of The Royal Asiatic Society. RAS Journal 38:2)

Another popular utilitarian explanation sees pets primarily as educational "toys." According to this theory, children who have the opportunity to observe, play, and interact with such animals gain experience that will enable them to become more successful hunters in later life (Laughlin, 1968). This idea appears to stem largely from confusion over the various meanings of the term "pet." It is undoubtedly true that in many hunting societies children tend to be given small wild animals as temporary playthings. Like Christmas gifts in our own culture, these unfortunate, animated toys are usually short-lived, and often end up the objects of target practice or mutilation. It is entirely possible that these childhood games provide practice and instruction for future hunting activities, but it would be a great mistake to confuse this with the kind of animal/human relationships characteristic of the Warao, the Kalapalo, the Barasana or, indeed, most of the cultures already described. The pets in these latter societies are breast-fed, nurtured, protected, and cared for throughout their lives. In no sense can they be regarded as expendable objects of entertainment. The trouble is that the word "pet" covers a multitude of sins, and it is important, whatever the society, to distinguish between companion animals and animals used as objects of play, status, or, indeed, any other purpose.

The subject of pet-keeping in tribal societies has also contributed to an ongoing debate between "structuralist" anthropologists and "cultural materialists" about the origins of dietary and sexual taboos. Structuralists have argued, for instance, that people avoid killing and eating pets because the animals have been personified and included in the social world of people (Levi-Strauss, 1966; Leach, 1964; Sahlins, 1976). A moot point, no doubt, but it entirely fails to explain why they keep the animals or personify them in the first place. Others have pointed out the symbolic resemblance between the act of eating a pet and the act of sexual intercourse between close relatives. According to this view, we don't eat our pets because it would be metaphorically equivalent to committing incest (Tambiah, 1969). Cultural materialists, taking a more down-to-earth perspective, have suggested that the real reason we don't consume companion animals such as dogs and cats is simply because of the practical and economic difficulties associated with farming these carnivorous species for food (Harris, 1978). Neither side in this debate attempts to explain why subsistence hunters and horticulturalists invest so much of their time and resources in economically valueless pet animals; they are solely concerned with people's reluctance to kill pets and eat them. As if the only sensible or understandable reason for keeping and caring for an animal is in order, ultimately, to devour it.

DISCUSSION AND CONCLUSIONS

There appear to be two main reasons why anthropologists have been reluctant to explore the phenomenon of pet-keeping or to speculate about its functions. Until comparatively recently, attitudes toward so-called primitive societies have been influenced strongly by old-fashioned, ethnocentric views of human cultural development. According to this tradition, societies evolved progressively upward toward increasingly advanced and sophisticated levels of material civilization. Because they were seen as occupying the lowest rungs of this developmental ladder, the lives of hunters and simple horticulturalists were assumed to be correspondingly arduous and uncomfortable. Viewed in this light, hunting economies could not afford to engage in non-productive activities such as pet-keeping, so the practice was best ignored, explained away as aberrant, or squeezed into some form of contrived utilitarian hypothesis. Fortunately, however, within the last twenty years, ideas about hunting and gathering have changed dramatically. Research on contemporary hunter-gatherers (see for instance Lee, 1969), and the work of paleoanthropologists and pathologists (such as Cohen and Armelagos, 1984) suggests that subsistence hunters, both now and in the past, often enjoy more leisure time, and are generally healthier and better nourished than many agricultural populations. In other words, hunters and horticulturalists appear to be relatively affluent (although not perhaps in the sense that we use the term in the West), and there does not seem to be any economic reason why they should not also keep pets.

Attitudes to pets have also changed. Whereas pet-keeping was once assumed to be a pointless

luxury or a curious perversion, it can now be understood as the outcome of normal human social behavior and needs. During the last fifteen or so years, the work of Boris Levinson, Sam and Elizabeth Corson, Aaron Katcher and Alan Beck, Leo Bustad, Mike McCulloch, Peter Messent, and many others has amply demonstrated that the majority of pet owners are normal, rational people who make use of animals in order to augment their existing social relationships, and so enhance their own psychological and physical welfare. And in all probability, this is as true for South American hunter-gatherers as it is for people in the industrial West. Thought of in these terms, keeping a dog, a cat, a parrot, or even a tapir for companionship is no more outlandish or profligate than wearing an overcoat to keep out the cold. This does not, of course, mean that pet-keeping is universally beneficial since, like any leisure activity, the net benefits need to be weighed against the costs. It does, however, imply that, where adequate time and resources are available, pet-keeping will arise as a natural and beneficial product of human social propensities.

One of the more attractive aspects of this new concept of human/animal relationships is that it allows us to approach and re-examine many old problems from a novel perspective. Within the field of anthropology, pet-keeping remains virtual *terra incognita* as an area of research. Yet it is one that in the future may provide important insights into, among other things, the origins of animal domestication, the emotional and affiliative needs of non-Western peoples, and the relationship that exists between modes of economic subsistence and overall attitudes towards animals and the natural world (see Serpell, 1986).

It is undeniably true that humans, like all animals, are ultimately constrained by material or, more correctly, ecological demands. But any attempt to understand the evolution of human behavior purely in terms of these *essentials* will inevitably ignore a wealth of social and cultural factors that people may be able to live without, but that nevertheless make a substantial contribution to the quality of their lives. The keeping of animals as companions is clearly not essential to human survival. We can live without it, just as we can live without singing, dancing, music, art, laughter, and friendship. Yet the fact that so many people in so many different cultures are motivated to engage in these inessential activities strongly suggests that the rewards are far from negligible.

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HEALTH AND CARING FOR LIVING THINGS

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This paper has a single, simple, central theme: we are reawakening to the singular importance of contact with natural surroundings and companion animals because, unlike any other generation of human beings since the inception of agriculture, human existence in industrialized societies is deprived of opportunities for nurturing and for affectionate interchange with others. This deprivation is a result, in part, of the explosive urbanization of the population complemented by the mechanization of agriculture and, most recently, the fall in birth rate.

This paper will argue that care of farm animals, pets, and gardens permits the elaboration of nurturing beyond the raising of human children, and that the extension of the activities of nurturing in both depth and time have had favorable consequences.

This insight did not arise from the close study of recorded data. It was formed during a hike in the Pyrenees. These are moderately low mountains, six to nine thousand feet high, but relatively new, geologically speaking, and deeply carved by glaciation. In the space of five or six hours one can walk through secondary forest to alpine meadows to bare scree, where slender cataracts fall from snow melting in the July heat. Those walks were journeys through different ways of apprehending nature, a nature manifested in: the shifting patterns of light and shade created by one's own motion through forest; the hypnotic noise and movement of swiftly flowing water; the microscopic view of the ephemeral world of alpine flowers, bright butterflies, and scurrying beetles; the sight of spring displayed, in space rather than time, near the melting snow fields, where one can walk in a few steps from full flower to barely green thrusting buds, to still-frozen earth; the odors of mint, thyme, mold; and, finally, a sweeping vista from the moraine's rock rim, where a sense of the sublime and of the slowness of time is created by the distant unobstructed vision of other peaks.

Those walks generated a feeling of being intact, complete, as if the solid distinct otherness of that natural world had acted as a mirror reflecting myself back to myself. That sense of being intact, distinct, and comfortable in myself crystallized precisely at the moment when the sense of being a separate self was lost in contemplation.

The realization that a solitary retreat into a more intimately absorbing contact with the natural world could create a sense of completeness suggested a new architecture for thinking about the impact of the natural world on human life. In previous writing (Katcher, 1981) it was suggested that pets did not substitute for human relationships, but complemented them. This conclusion followed from the recognition that most pet owners live in intact families containing both children and pets. These pets gave their owners access to a sensual dialogue combining touch, talk, and mutual attention with a superabundance usually not available from other human beings. Contact with pets, parks, and wilderness was a welcome addition to human experience, adding to its complexity and pleasure. The paper should have suggested that contact with the natural world might be a *necessary* part of human development. Perhaps life in a purely human or cultural environment might be a deprived life, a life where survival is always possible, but a life suffering emotional loss, and a failure to realize potential and, perhaps, a loss of vitality and health. The failure in the paper to recognize the essential role of contact with the natural world arose from a failure to consider an appropriate span of human history. An examination of that context revealed the theme of this paper: in no era have human beings been as deprived of nurturing contact with either children or animals as they are now.

Conventional thinking about animal companionship is very much like the conventional psychological wisdom about gentle touch surfacing immediately after the Second World War. At that

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time it was believed that infants were bonded to their mother by the act of feeding and were eating machines connected to the outside world only through their mouths. Holding and touching were recognized as comforting, but not necessary and perhaps distracting and addicting. Although the healing virtues of touch for adults had been acknowledged for a very long time, its place in normal adult life was not recognized at all—the psychological sciences, in resonance with the general culture, being still too engaged with the exploration of sexuality. It was not until the work of Spitz (1945), Bowlby (1952), and Harlow (1962) that we were able to recognize touch as a vital necessity for infant development. Without touch infants do not develop normally and, if the deprivation is severe enough, they can fail to thrive and die. Recovered infants or infants who experienced less severe deprivation may have persistent impairments in their ability to form close relationships with other human beings. After infancy human beings can exist without affectionate touch, but such a life is always deprived and that deprivation has a cost in mental and physical health.

To understand how contact with the natural world may be a vital part of normal human experience, it's necessary to see how much of the activity of keeping a pet resembles the nurturing given human infants. Once pet-keeping is seen as an extension of human nurturing, its value becomes more obvious. We can best indicate the resemblance between child and pet care by briefly describing the development of our own research. When we first observed that the presence of a pet in the family could have a positive effect on the health of patients with severe coronary artery disease (Katcher and Friedmann, 1980; Friedmann et al., 1980), we immediately thought of the role of physical display of affection in producing that increase in health. Our initial experiments (Katcher, 1981) demonstrated that the touch-talk dialogue with animals was associated with lower blood pressures than dialogue with people. Those early observations have been essentially confirmed and extended by Baun (1985), Grossberg (1986), Jenkins (1986), and Friedmann et al. (1986).

When people did touch and talk to their animals, they used a distinctive style of facial expression and speech that had the form of a physical, if not a verbal, dialogue. Observing a dialogue of words, touch, eye contact, reciprocal grooming, mouthing, and scenting between people and dogs or cats does not arouse our wonder, perhaps because we believe in a "mammalian bond," a common heritage of social existence. It is more thought-provoking to see that kind of reciprocal grooming and affectionate interchange between people and birds, two species that have been pursuing divergent paths of evolution for over 250 million years. Like dialogue between people and dogs or people and cats, this interaction with birds had the following characteristics (Katcher, 1985; Katcher and Beck, 1986):

1. Where possible the head of the person is placed close to the head of the animal
2. The volume of the voice is reduced, sometimes to a whisper
3. The pitch of the voice is raised
4. The rate of speech and length of utterances are decreased
5. There is considerable verbal play with words, combinations of words and sounds, and stress and length of syllables
6. Utterances are terminated with a rising inflection to emphasize or create a question, permitting the creation of a pseudo-dialogue with the animal. In this dialogue, the person may supply a verbal response for the animal, or some response of the animal's may be used as a reply. Appropriate pauses are inserted in the dialogue to permit such replies.

All of these characteristics of speech have been noted as characteristic of the dialogue between parents and young infants. To this extent, the dialogue between person and pet resembles the play between parent and human infant.

There are, however, certain characteristics of the dialogue between person and pet that make that kind of dialogue distinctly different from "motherese," and indicate that child-oriented dialogue has been modified for use with animals. The most striking differences are found in the facial expressions used, and in the level of excitation conveyed in the dialogue. Parents tend

Table 1. Characteristics of Nurturing

Companionship	Domination—Protection	Desirable Consequences
Eating together	Shaping of form	Immersion in cyclical time
Sleeping together	Management of sexuality	Feelings of safety, completeness, control and intimacy
Petting	Constraint of movement	Knowledge
Play	Shift from nature to culture	Relaxation through outward direction of attention
Face-to-face interaction	Working	
Reciprocal grooming	Killing	
Dialogue	Management of excrement	

to use exaggerated facial gestures in interacting with children as if they are miming a caricature of emotional expression to aid the child in the recognition of the appropriate facial gestures. In interaction with animals the face is remarkably composed. The brow is usually smooth, the nasal labial fold is flat, and the eyes are partially closed. This appearance of relaxation is accentuated by the character of the smile, which is less pronounced than the smiles used when talking to the experimenter. It resembles the "Madonna" smile with which parents gaze upon sleeping infants.

A second special characteristic of intimate interaction with companion animals is also related to the level of arousal communicated. With young infants, the mother will use arousing styles of speech and facial gestures to capture the child's attention. With companion animals that are free to move actively, increasing the level of arousal will either cause the animal to escape (or less frequently to attack), or will increase the amplitude of the interaction until it no longer has the characteristics of an intimate dialogue but constitutes play instead. Our subjects, who were told to talk to and touch their animals as they usually do, kept the arousal level reflected in their behavior low, to preserve the intimacy of the dialogue, and to keep the animal receptive to gentle touch.

The change in facial expression and demeanor had its effects on observers. People were more attractive when engaged with their pets. Their smiles and their aura of peaceful relaxation were contagious. Perhaps these changes are behind the observation (Messent, 1983) that people are approached more often when they are with their pets in public spaces, and are also present in Lockwood's (1983) conclusions that images of people are perceived more favorably when they are paired with images of companion animals. Our preference for images of people paired with animals is translated into practice. People holding children and people holding pets are two of the most popular subjects for home photographers (Ruby, 1983), and handicapped persons assisted by dogs are approached for social contact much more frequently than when they are out alone (Eddy, Hart, and Boltz, 1986).

Because the dialogue between people and their pets resembles the dialogue between parents and young infants, and because people commonly speak of their pets as members of the family and as children (Cain, 1983; Katcher, 1981), nurturing must be a dominant theme in our relationships with pets. Examination of the general characteristics of nurturing (Table 1) reveals broad similarities in the activities and feelings directed toward children, pets, farm animals, and even gardens and house plants. The table is descriptive and does not make implications about value. A variety of feelings is evoked by the practice of abortion, infanticide, disposal of unwanted pups or kittens by breeders, or slaughter of animals for food, yet all of these activities occur in nurturing relationships. In similar fashion, "domination" is a term used pejoratively to describe the attitude toward nature inherent in a consumption-oriented

society. Yet it is not possible to raise a well-behaved pup, bird, or child unless they are effectively subordinated. Domination may, of course, have more than instrumental uses; Tuan (1984), by comparing the symbolic structure of pets, gardens, and fountains, has cogently argued that these adornments to human life express a delight in the domination of nature, and in the transformation of the natural into the cultural.

In this era of intensive farming it is difficult to remember that sensuous affectionate relationships exist between farmers and their animals. Fortunately, Hardy has given us an excellent description:

> *In general the cows were milked as they presented themselves, without fancy or choice. But certain cows will show a fondness for a particular pair of hands, sometimes carrying this predilection so far as to refuse to stand at all except to their favorite, the pail of a stranger being unceremoniously kicked over….*
>
> *Tess, like her compeers, soon discovered which of the cows had a preference for her style of manipulation…. Out of the whole ninety-five there were eight in particular—Dumpling, Fancy, Lofty, Mist, Old Pretty, Young Pretty, Tidy, and Loud—who, though the teats of one or two were as hard as carrots, gave down to her with a readiness that made her work on them a mere touch of the fingers….*
>
> *All of the men and some of the women, when milking, dug their foreheads into the cows and gazed into the pail. But a few, mainly the younger ones, rested their heads sideways. This was Tess Durbeyfield's habit, her temple pressing the milcher's flank her eyes fixed on the far end of the meadow with the quiet of one lost in meditation.*
>
> THOMAS HARDY, *Tess of the D'Urbervilles.* Penguin Edition, 1984, p. 177

It must also be emphasized that most of the activities and consequences of pet- or livestock-keeping are part of cultivating and gardening. The two activities do differ, however; with pets one is always hauling away excrement while with gardens one is always hauling it in.

Nurturing is a biological activity, with touch, odor, rhythmic and cyclical activities playing a large role. One would expect psychological and biological effects from such an activity. Unfortunately, there is little information about the favorable or unfavorable biological consequences of nurturing activity. To understand what domestication of plants and animals may have done for us, it is necessary to look at that activity in an evolutionary context.

It is a reasonable hypothesis that the prolonged care of infants in primate groups was facilitated and maintained by deeply rooted physiological, psychological, and social rewards. If child-rearing makes parents healthier and more socially attractive, the survival of their infants would be facilitated. Survival of progeny would also be facilitated if animals no longer raising offspring were less attractive, and more vulnerable to disease and death. If you wish to ensure the passage of your genes into the next generations, then stay healthy as long as you can, aid your children in the competition for resources, and then pass out of the picture rapidly when you become only another competitor.

When humans give up caring for others and lose their appetite for work and pleasure, they do become more vulnerable to disease. There is a large literature suggesting that social isolation, loss of a spouse, and depression can result in decreased health and significantly increased vulnerability to accident, chronic disease, and death (Lynch, 1977; Ory, 1983). Depression is a complex psycho-biological state in which the competence of the immune system is decreased and mortality from a broad range of pathological events is increased. One of the most important triggers for depression is loss of the opportunity to care for, nurture, and love others. Depression can be triggered by withdrawal from the company of others and, in turn, depression causes increasing social withdrawal. Caring and depression are both self-facilitating states, one causing us to move toward other people and health, and the other leading us to increasing social isolation and vulnerability to disease.

The history of human evolution is a history of increasing time spent in nurturing infant animals. The continuing enlargement of the primate brain demanded one of two evolutionary adaptations: the production of progressively altricial young, so that growth in brain size was completed after birth, or massive enlargement of the pelvic outlet. Apparently human development was associated with progressive neoteny, the first of these strategies. As described by Gould (1981):

> *Flexibility is the hallmark of human evolution. If humans evolved as I believe, by neoteny, then we are, in a more than metaphorical sense, permanent children.*

(In neoteny, rates of development slow down and juvenile stages of ancestors become the adult features of descendants.) Many central features of our anatomy link us with fetal and juvenile stages of primates: small face, vaulted cranium and large brain in relation to body size, unrotated big toe, foramen magnum under the skull for correct orientation of the head in upright posture, primary distribution of hair on head, armpits, and pubic areas…. In other mammals, exploration play, and flexibility of behavior are qualities of juveniles, only rarely of adults. We retain not only the anatomical stamp of childhood, but its mental flexibility as well.

The proto-human young were nurtured for progressively longer periods of time as the size of the human brain decreased. The period of dependency began, of necessity, to exceed the four or five years on which the child was dependent upon breast feeding for sustenance. Because dependency of the young and the need to protect and feed them extended beyond the period of nursing, it is reasonable to assume that members of the kin network became engaged in part in this child care. This would be an evolutionary efficient strategy, since kin fostering would also result in the passage of genetic material into the next generation. Neotenic development decreases the distinction between adult and child-like characteristics, blurring the distinctive traits that release affectionate care and thus extending the period of time and the kinds of people engaged in affectionate nurturing. One could hypothesize that the generalization of the nurturing response would also extend to disabled and sick members of the band, resulting in a higher survival rate from illness and accident.

When human beings began to rear other animals, perhaps by bringing home the young of adults killed in the hunt, they extended their opportunities for sensual involvement in nurturing activities. The care of animals became facilitated both by the practical value of the animals themselves, and by the pleasure and physiological rewards of caring for the animals. If nurturing plants and animals had some of the same rewards as caring for other human beings, then we would also expect the health of those groups who practiced domestication to have been improved both by better nutrition and by the direct beneficial effects of the increased opportunity to engage in nurturing activities.

Domestication of plants and animals also extended the opportunities for rearing human children. The limited resources available to hunting and gathering tribes requires them to space out childbearing. The increased food resources and opportunity for permanent settlement afforded by agriculture permits a greater frequency of childbirth (Fisher, 1986).

Agriculture was fully established some 10,000 years ago, providing for humankind a continuous and almost universal contact with and nurturing experience toward plants and animals. This engagement persisted throughout the history of civilization until the last 200 years. In those two centuries, only 10 to 15 generations, a trivial time in the genetic history of human beings, there has been an extraordinary disengagement on the part of people concerning the care of animals and plants. This trend began well before the industrial revolution, with its enclosure and expropriation of public lands, and its shift in agricultural practices to support trade in grain, wool, and cattle (Williams, 1973).

Shifting patterns of agriculture, with the displacement of small or peasant farmers, continued into the beginning of this century in Europe, and continues of course in South and Central America to this day. People were not attracted to labor in the cities' mills, they were driven to it. Thomas Hardy, describing the depopulation of rural England, wryly remarked:

> *A depopulation was also going on…. These families, who had formed the backbone of the village life in the past, who were the depositories of the village traditions, had to seek refuge in the large centers; the process humorously designated by statisticians as "the tendency of the rural population towards the large towns," being really the tendency of water to flow uphill when forced by machinery.*
>
> THOMAS HARDY, *Tess of the D'Urbervilles*. Penguin Edition, 1984, chapter 51

Since the industrial revolution, there has been an enormous shift of people into cities and away from any contact with the rearing of animals or the care of gardens and orchards. In the space of two centuries, the United States and western Europe went from a population that was only 10% urban to one that was 90% urban. In the United States, 1910 was the first year there were fewer farm workers than industrial laborers, and now

farm labor makes up only a small fraction of the work force. Many of those remaining laborers have tasks such as seasonal harvesting that are divorced from the care of animals, although they do provide some contact with nature. In the relatively few years since industrialization there has been a radical transformation in the physical relationship between human beings and other living things, with a very large part of the population being excluded from contact with and care of living things other than their own children. In 1800 the world population was a little less than one billion. By the year 2000 the population of the world's five largest cities will total one billion people. In the past 50 years, the fall in birth rate, the rise in divorce rate, and the increased frequency of people who are electing to live alone has resulted in an increasingly large fraction of the population that has little or no experience in the care and nurturing of human animals.

Using the western or industrialized world as an example, never has there been a human population that has spent so little time in physical contact with animals and plants, and has devoted so little time to the nurturing of its own young or the care of animals. We have no idea what the cognitive, emotional, and physiological consequences of that change have been.

Part of our ignorance is willful ignorance. We are trying to convince everyone to have fewer children. If Americans are committed to motherhood and apple pie, the behavior scientists in this country are committed to the necessity of limiting population growth, and to the full inclusion of women in the society. Attainment of both of those goals would not be facilitated by a realization that nurturing other living things might have positive or beneficial health and emotional consequences. The belief that taking care of living things is necessary for health or for the attainment of full human potential is not a "serviceable" one. It does not justify the important social agendas of population control and universal employment.

Awareness of the emotional and health benefits of tending for living things does not imply that men and women in industrial nations must return to unlimited population growth. During the entire growth of civilization, human beings have satisfied their needs for nurturing activities by caring for plants and animals. The rewards of caring direct us toward a return to engagement with the living world.

The awareness of what taking care of animals can do for us occurs at a time when it is becoming clear how much we must be concerned with the preservation of the earth's living environment. It is now necessary to make a direct connection between our need to care for other living beings and the need to protect our fragile environment. In the profound reformation of our consciousness of nature, we are losing our long-held idea of nature as life outside of us; a powerful, potentially dangerous being, from which humankind must wrest the conditions of its existence. Nature is no longer outside of us, nature is no longer a powerful adversary that must be conquered, tamed, or endured. The industrial revolution supplied the tools both to conquer and to shrink the natural world, and nineteenth-century romanticism simultaneously glorified the wildness of nature and its conquest. In the twentieth century, the reduction of nature has been completed, and we have attempted to assuage our loss, and to recover what we have lost by the creation of a new metaphor for the link between our culture and nature. That metaphor does not create a new aesthetic, as the romantic image of nature once did; it has created a new ethic.

Nature is no longer a kind of demonic god that must be conquered or colonized for the glory or progress of men. Behemoth and Leviathan are endangered species. They have become tender infants in need of protection rather than terrible symbols of the demonic forces that can crush man's existence. One could speculate that if Captain Ahab were resurrected today, he would be driving his craft between the Japanese trawlers and the whale with the same reckless abandon with which he pursued the whale a century earlier. He would be protecting the whale as a tender child, rather than relentlessly attacking a brutal parent. When Ahab pursued the whale that maimed him, he saw, in nature, the author of the blind fury that shaped man's frail life. He saw nature as an all-powerful parent that both nurtured and killed its young. Now he would recognize that the blind fury in our lives is not a demonic nature, but humankind itself. Now nature must be protected from man, not man from nature.

We have conquered all of nature but ourselves. No part of the world is safe from our dangerous influence. The rain forests of Brazil and the Arctic ice all bear the scars of pollution, or of exploitation. We must now guard the ozone layer, the very outermost atmosphere of the earth's envelope, as carbon dioxide and fluorocarbons change the climate of the entire earth.

We now must care for all the living world. Wilderness is a collection of fragile species that must be rescued, nourished, and protected. There no longer is any true wilderness. Nowhere on the globe does life exist independent of human activity. Our growing interest in nourishing and caring for plants and pets in our private spaces is reflected in the growing knowledge that we must preserve and care for the life of the entire planet. Perhaps the work of the paleolithic cave painters of the Dordogne is nearing completion. They brought the first animals out of the world into the interior domain of human perceptual space. Now all of the world's animals and plants must be part of the human order of thought if they are to survive. We must continuously think and rethink the natural world if we are going to sustain it in its complexity and fullness.

What conclusions are to be drawn from this line of reasoning?

There is a critical need for continued and augmented exploration of the emotional and health value of nurturing living things. The investigation should include people at all phases of the life cycle. We should certainly continue to examine relationships with pets like dogs, cats, birds, small mammals, reptiles, aquarium fish, and horses, but should also observe people with gardens, farmers, and 4-H children with their animals, bird watchers, and wild bird feeders. The variety of human feeling and nurturing activities displayed in relationships with these diverse living things will permit an examination of all the emotional and behavioral factors contained in that global term, nurturing. We need to know as much about the effects of caring for living things as we are beginning to learn about exercise and touch.

We know already that there are immediate and favorable emotional and physiological changes proceeding from contact with pets, and, by inference, from the nurturing of domestic animals, gardens, and house plants. The active contemplation of the natural world also has the ability to reduce tension and to integrate the sense of self. This knowledge must be used to reinforce those movements in the society that are beginning to redress the radical deprivation of nurturing contact that has been accelerating over the past two centuries.

There has to be a linkage built for ourselves and our children between the care of pets and gardens and the care of the increasingly fragile natural environment (Bustad, 1986). We have to learn to benefit from nurturing our domestic animals, but we then have to learn to extract the same pleasure from nurturing at a greater distance, from caring for that part of the living environment that must be maintained as a thing in itself and not made into a cultural object.

Our zoological gardens should take a leading role in forming this new linkage between care of pets and domestic animals, and preservation of the natural world. Zoos must now, perforce, tame and breed animals that are threatened in the wild. Their curators must learn both to breed the animals and to preserve knowledge about their behavior so that eventually they can be released to recreated natural environments. Zoos, then, have a dual mission, that of providing a pleasurable education about living nature, and of preserving endangered wildlife. The ethic inherent in those goals should be underlined through a variety of education programs. Zoos should lend their expertise in a cooperative venture with hobbyists to replace imported birds, amphibians, reptiles, and fish with captive bred animals. With the shortage of basic research funds, it is probable that the captive breeding of many species will be implemented by dedicated amateur naturalists. In similar fashion, the zoo is in an ideal position to teach people how to use their pets to gain a wider understanding of wild animals and of ecological systems. In the most general sense, the zoo should be the starting point for a new kind of science curriculum that is oriented toward observation rather than experimentation, and that brings children back to an appreciation of the appearance of the natural world. We need to know how to identify trees and plants and birds, and to understand the organizing principle in the structure of plants and

animals. We need to know how to look at the behavior of animals and at the operation of ecosystems. The educational activities of zoos should be the start of a reform of our educational system so that children can learn to see the natural world around them. If Paul Shepard's (1978) intuitions are correct, then learning plant and animal taxonomies should greatly facilitate other kinds of learning. Science should be taught by observation; children should learn a biology of the senses, an engaged science that lets them both apprehend and care for the natural world.

Lastly, we must learn to use our ability to gain and preserve ideas of natural things, to express our care for the living world through active observation and through attentive contemplation. It is a way of finding solace and peace in that part of nature we must leave to itself and visit with as little interference as possible.

By drawing healing from nature through a return to the essentially human activities of care and contemplation, we may be able to find the strength to restrain our own materialism, and so prevent the destruction of that vast structure of appearance that constitutes the natural world.

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EQUINE BEHAVIOR PROBLEMS IN RELATION TO HUMANE CARE

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Abstract. *There are a variety of equine behavior problems presented to the Animal Behavior Clinic of the New York State College of Veterinary Medicine. Of those that can be easily classified, 18% involve aggression, 8% involve stable vices, and 4% involve trailer problems.*

The purpose of this study is to relate behavior problems to humane care of horses. Stable vices in particular can be predicted, prevented, and cured by a consideration of the behavior of horses in a natural environment. Horses on pasture or in the wild spend 60% of their time grazing. The typical modern equine diet of high concentrates and limited roughage does not take into consideration the horse's requirement for roughage. If this is considered, wood-chewing and coprophagia can be treated by increasing the roughage in the diet.

Another approach to prevention of stable vices and humane management of horses is to evaluate the animals' environmental preferences. When given a choice, horses spend only 10% to 720% of their time in stalls. They spend 50% to 60% of their time in visual contact with other horses. Some cases of aggression while stalled may be due to fear of a dark environment. In general, stall vices such as weaving, stall-kicking, stall-walking, pawing, and even cribbing can be successfully treated, not by punishment, but by pasturing the horse with other horses.

Equine aggression can be treated by methods that are not brutal, but instead make use of the social behavior of horses. Even trailer problems can be dealt with by considering the horse's preference for a lighted environment and solid footing. Foal rejection is truly abnormal behavior, apparently genetic in origin, but it resembles similar behavior by stallions toward alien foals.

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Horse behavior problems fall into three main categories: sex, violence, and vices. Most of the behavior problems that are presented to the Animal Behavior Clinic of the New York State College of Veterinary Medicine, Cornell University, represent not abnormal behavior, but natural responses. Unfortunately, the natural responses may not be compatible with the use the owner has for the horse. Other truly abnormal behaviors usually represent the horse's response to an abnormal situation—confinement or sexual frustration that it would not have encountered in the wild. The categories of behavior problems seen in our practice are evident from a breakdown of 100 cases seen at the New York State College of Veterinary Medicine. These were:

- 19 aggression cases
- 15 cases of vices under saddle
- 11 stall vices, including:
  - 1 climbing out
  - 1 weaving
  - 1 pawing
  - 3 stall-walkings
  - 5 cribbings
- 11 cases of head shaking
- 10 cases of self mutilation
- 7 cases of trailer problems
- 3 cases involving sexual behavior
- 24 miscellaneous cases

Careful quantitative study of horses and their behavior in a variety of social and environmental situations will allow us to manage the species better with fewer problems to the horse or its owner.

SEXUAL BEHAVIOR

Sexual behavior problems are common in geldings, and as many as 30% of geldings show some type of sexual behavior (Line et al., 1985). Usually this behavior is limited to courting and mounting of mares, behaviors that are embarrassing, but not serious to the owner. The more serious problems arise when the gelding defends his mares by chasing, biting, and kicking other geldings. Another problem arises when foals are present, because

some geldings will attack foals in the same manner that stallions do (Duncan, 1982). Finally, some geldings will bite themselves, usually on the flank, when mares, especially estrous mares, are present.

Stallion behavior problems involve either excessive or deficient libido. The excessive libido is most apt to occur when the stallion is used only for hand breeding, that is, is allowed to breed only a few times a week. A related problem is aggression directed at the mare during or instead of courtship. This is most apt to occur when the stallion is used for breeding outside the normal equine breeding season of spring and summer. Poor libido can be the result of pain, injury, or the memory of pain and injury, but it can also be due to lack of practice. Colts spend much of their play time rehearsing their adult roles by play-fighting and mounting. Colts deprived by isolation of this experience during rearing may be unwilling to mount a mare.

Stallions also bite themselves or self-mutilate (Houpt, 1983). Unlike geldings, however, they are most apt to self-mutilate when they do not have direct access to mares, but can see, hear, or smell them.

Mares can also show deficient or excessive sexual behavior. Excessive sexual behavior in the form of psychic estrus or nymphomania is more common. These mares will squat and urinate frequently when a new horse, even a female, is present. Unfortunately a horse show always involves new horses, and a mare in psychic estrus is not a good performer. A mare that does not show estrous behavior even though she is in physiological estrus may be disturbed by the presence of the stallion, especially if she has a foal at the time. Other causes may be the effect of trailering and of a new environment; most mares are brought to the stallion's home stable rather than vice versa. Finally, some mares, as well as some stallions, have definite individual preferences, that is, they will be attracted to one member of the opposite sex, but not another.

AGGRESSION

Aggression, either aggression toward people or aggression among horses, is the most common equine behavior problem. Aggression toward people can be the result of either fear or the opposite, a feeling of dominance over people. A fearful horse is more apt to kick; a truly aggressive horse will charge and bite.

Aggression among horses is usually the result of a dominance dispute. Horses form dominance hierarchies in which one horse has first access to a scarce resource such as food and can threaten all the other horses in the herd with impunity (Houpt and Wolski, 1980). The next horse in the hierarchy has second access to food and can threaten everyone but the top-ranking horse. Finally the last mare is threatened by everyone and threatens no one. That horse may not be able to get enough to eat while the other horses are getting fat. This is the usual result of equine dominance disputes, but they can have far more serious consequences. Horses can be injured or even killed. This occurs fairly frequently in domestic horses, and very rarely in free-ranging horses. The simple explanation of this difference is that domestic horses cannot get away from one another. In the wild, a horse can leave one herd and join another. (They rarely live a solitary existence.) The domestic horse does not have that opportunity, although it may, in a large pasture, simply avoid the other horses. In a paddock or any confined space one horse cannot escape and can be trapped in a corner. It will probably kick in self-defense so that both horses, the aggressor as well as the victim, will be injured.

Most newly introduced horses will form a hierarchy after a few days of conflict. Some pairs of horses remain incompatible and will continue to fight for years. Obviously these horses should not be kept together.

STABLE VICES

The other large category of equine behavior problems is the so-called stable vices. Horses evolved in a plains environment and, as mentioned above, naturally live in herds composed of three to seven adult horses and their juvenile offspring. Comparison of the natural environment with that of the usual domestic horse, a single 10×12-foot stall, indicates why problems arise. It is surprising that more horses do not have stable vices.

We have recently investigated the environmental preferences of horses and found that they spend less than 25% of their time in a stall even in the middle of winter. They also spend the majority of their time in social contact, that is looking at other horses. Keeping horses out of doors and, if not in groups, at least in view of other horses would reduce the incidence of vices. Groups of horses should be carefully constituted so that incompatible horses are not placed together, and so that no horse is thus denied access to feed.

Stable vices can be subdivided into vices involving the head and those involving the feet. Vices involving the head are cribbing and wood-chewing. Cribbing is the act of grasping a horizontal surface with the teeth, arching the neck and, usually, swallowing air. The incidence in Thoroughbreds is 2% (McBane, 1987). There is evidence that the behavior is inherited, although learning may play a role; not all foals of cribbing mares, however, become cribbers (Vecchiotti and Galanti, 1986). The consequences are excessive wear of the incisor teeth and sometimes loss of weight. Exceptionally, the horse may swallow enough air to induce flatulent colic. The habit is noisy and results in the destruction of fence rails, water buckets, and other surfaces that the horse uses to crib. Cribbing is apparently pleasurable to horses because it causes release of endogenous opiates, the naturally occurring drugs involved in pain tolerance and pleasurable sensations. Antagonizing endogenous opiates will stop cribbing temporarily (Dodman et al., 1987).

Another behavior that may be closely related to cribbing is throat-pressing. Putting pressure on the pharynx is assumed to be pleasurable, but it also puts pressure on the larynx and trachea and therefore elicits coughing in some horses.

Wood-chewing is probably the most common of the oral stable vices. It is probably the most costly of the vices, because by it fence rails can be eaten through, edges of doors made ragged, and whole barns eventually consumed. Although there are anecdotal accounts of an acute onset of wood-chewing when a horse is in pain, the usual causes of wood-chewing are related to the stall environment; not particularly to the fact that the horse is confined, but rather to the fact that it cannot graze. Horses kept in grassless paddocks will also chew wood. This indicates that there is a dietary cause, probably lack of roughage. Increasing the amount of hay in the diet will usually reduce the incidences and severity of wood-chewing. Wood-chewing will often begin when a horse's diet is changed from hay to pellets. There may also be a weather effect, because the highest rates of wood-chewing occur in cold wet weather.

Coprophagia, eating manure, also appears to be related to a lack of roughage, but other nutritional deficiencies can cause it (Schurg et al., 1977). Young foals normally eat feces (Crowell-Davis and Houpt, 1985), but in an older horse it is a cause for concern. There are a variety of other oral vices, including tongue-lolling and bandage- or blanket-removing.

Stall vices involving the feet are weaving, wall-kicking, pawing and circling, and stall-walking. Weaving is a stereotyped behavior in which the horse shifts its weight repeatedly from side to side, but remains in one place. Some horses that pace or circle in their stalls will weave when placed in a straight stall or cross-tied in a box stall. Other horses will weave even when free in a box stall.

One may find it difficult to relate high-speed transportation to the natural behavior of the horse. That in fact may be why there are so many problems relating to the behavior of the horse while traveling. The first and most common problem can in fact be related to the natural behavior of horses; the problem is failure to load. Horses are reluctant to step on strange, particularly hollow, surfaces, a fear probably related to the horse's main defense—flight. The ramp of the trailer, of course, is an insecure hollow-sounding surface. The old adage "no foot—no horse" is as true for the wild horse as for the domesticated mount, so the horse naturally avoids anything that poses a danger to its feet.

Even if the horse is not dissuaded from entering a trailer by the ramp, it will be reluctant to enter a dark place such as the interior of the trailer. Horses' fear of darkness may be related to failure of rapid pupillary dilation, which will make it difficult to see in the dark, as well as to a sense of the predators that might lurk in a cave-like environment. The fear persists in domestic horses even though no cougar or bear is within a thousand miles of the trailer, because fear of predators is innate and served the horse's ancestors well.

Some horses become agitated when the trailer is accelerating, decelerating, or, particularly, if it is going around a corner. The horse will be thrown back when the trailer starts, forward when it stops, and against the side of the trailer when it turns. The horse may thrash and injure itself or, at the very least, become sweaty and overheated. The cause of the behavior is an inability to balance or brace against the forward movement of the vehicle (Cregier, 1982). In addition, trailering has been shown to have an effect on immune function in horses so that transport-stressed horses may become genuinely ill (Anderson et al., 1985).

Still other horses are reluctant to leave the trailer. This is most apt to be the case if the trailer is a "step down" trailer, one that has no ramp. The horse begins to move off the trailer, reaches back with one hind foot, and encounters nothing, no firm surface. In most trailers the horse cannot turn its head to look behind. If it could it would see the ground was only six inches away, but if the horse cannot see, it may feel it is stepping off the top of a cliff.

FOAL REJECTION

The one truly abnormal equine behavior that we see is foal rejection. The mares that reject foals are usually primiparous, that is, first-time mothers, but some mares continue to reject foals for many years. True foal rejection, in which the mare bites the foal, must be distinguished from milder forms in which the mare accepts the foal, but does not tolerate nursing. The intolerance is usually manifested by kicking at the foal as it approaches the udder. The large proportion of Arabian mares reported to reject their foals (Houpt, 1984; Houpt and Olm, 1984) in our study indicate that there may be a genetic component. Of 30 cases, 11 involved quarter horses, 14 Arabians or part-Arabians, and 5 others. The behavior of the foalrejecting mares is reminiscent of the foal-killing behavior of stallions and some geldings (see above). If there is a physiological (hormonal) basis for foal rejection, it remains to be identified.

In summary, horses may present their owners with a variety of behaviors that are distressing or dangerous. Some of these behaviors are normal equine behaviors; others are a response to, or are exaggerated by, stall confinement and artificial diets. Finally, some horses show truly abnormal, non-adaptive behaviors. For more information on behavior problems and their treatments see Crowell-Davis and Houpt (1986), Kiley-Worthington (1987), and McBane (1987).

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PROJECT PUP: THE PERCEIVED BENEFITS TO NURSING HOME RESIDENTS

Judy Yates

ABSTRACT. *This study documents the perceived value of a pet-facilitated therapy program (Project PUP) to a large number of residents (7,500) in a large number (70) of nursing homes over an extended period of time. The perceived benefits of the program as viewed by both givers (volunteers) and receivers (nursing homes) of the pet visits were very similar. The most highly rated benefits from the Project PUP program appear to relate to a general area which might be termed as "improved quality of life."*

INTRODUCTION

Pets are an integral part of American society, and statistics show that most Americans will own a pet during their lifetime (Anon., 1983). Although people have pets for many reasons, a basic one relates to the reciprocal and unconditional love of a pet. Indeed, being forced to live without that pet can leave a void comparable to the loss of a family member or spouse. The elderly are increasingly turning to special group care facilities in their later years. When a person enters a facility such as a nursing home, not only must he/she give up personal belongings and the security of home, but may have to give up a very dear and cherished pet. As New (1985) points out, "Elderly, especially frail elderly, can be strongly attached to their pets and perceive benefits from their companionship. Consequently, denial of pet ownership to frail elderly can have serious consequences."

There has recently been much research demonstrating that animals improve the emotional and physical health of some people. Research shows that pet-facilitated therapy (PFT) can have positive effects on the health of heart attack victims, persons living alone, convalescents, handicapped persons and the mentally disturbed (Beck and Katcher, 1983; Arkow, 1984). However, specific research into the benefits of PFT for nursing home residents has been inconclusive or has failed to show significant mental or physical changes over time (Beck and Katcher, 1984). A study by Daniel and Burke indicated that a pet visitation program had positive psychological effects on residents of one nursing home, with some effects of longer term than others (Daniel and Burke, 1985). McCulloch felt that there was a need for more intensive study into whether the use of PFT can be beneficial to the elderly such as those in nursing homes. He also indicated a need for concern over the negative impact on and hazards for pets in nursing homes (McCulloch, 1985).

In Pinellas County, Florida, more than 7,500 persons reside in 72 nursing homes. Local Health Department regulations prohibit resident pets in nursing homes in the county, so Project PUP (Pets Uplifting People) was developed to involve volunteers in bringing in pets to bridge the gap of loneliness. This paper reports the results of a study of the perceived benefits of the program after one year of operation.

Project PUP is a volunteer-operated pet visitation/PFT program for local nursing home residents. The Pinellas County Cooperative Extension Service of the University of Florida coordinates the volunteer program which is sponsored and directed by a consortium of ten Pinellas County agencies.

In 1985, all Pinellas County nursing homes were surveyed to determine their interest in a PFT program. A majority of those surveyed responded positively. A rigorous screening and placement process was established before volunteers were recruited, screened, trained, and scheduled for visits with the residents. In most cases, the volunteers take their pets from room to room, allowing the bedridden to interact with the pet and its owner. In other instances, the visit may be in a group setting where residents are in wheelchairs or are somewhat ambulatory. In many instances, a combination of both techniques may be employed.

From a core of four volunteers and eight pets, Project PUP has grown in 16 months to an organization of 117 active volunteers and 151 pets. These volunteers currently visit 70 nursing homes

Pinellas County Extension Director, 12175 125th Street, N, Largo, FL 33544.

and 4 other facilities that house almost 7,500 persons. In addition, there is a waiting list of mental institutions and health care facilities also wanting visits. In the first year of Project PUP, volunteers spent more than 4,000 hours to take pets to interact with persons who would have otherwise been deprived of pets and the therapy they provide.

METHOD

One year after the first volunteers had been recruited and placed by Project PUP, participating nursing home directors and volunteers were surveyed by mail to obtain information on the positive and negative impacts of the program to that date. Information was requested on such areas as tenure in program, number or frequency of visits, problems or successes of the program, and satisfaction with procedures. Of particular interest was the perceived benefits of the program to the nursing home residents. Separate but similar survey instruments were used for the two respondent groups. Each instrument provided item-by-item response options with the opportunity to comment or elaborate as the respondent desired.

RESULTS

Of 70 surveys mailed to nursing homes, 58 usable responses were received (83%). Another 91 similar surveys were mailed to Project PUP volunteers with 68 returned (75%). Of those, five indicated that they were no longer actively participating. Thus the response rate from active volunteers was 73%. The responses indicated the following:

Nursing Homes

1. had been participating in Project PUP an average of 9.9 months
2. had an average of 1.8 Project PUP volunteers visiting on a regular basis
3. received visits once per month 81% of the time, once every two weeks 11% of the time, and once each week 8% of the time
4. did not feel this frequency was too often (0%) but were somewhat divided as to wanting more visits (41%) and feeling the frequency of visits was just right (59%)

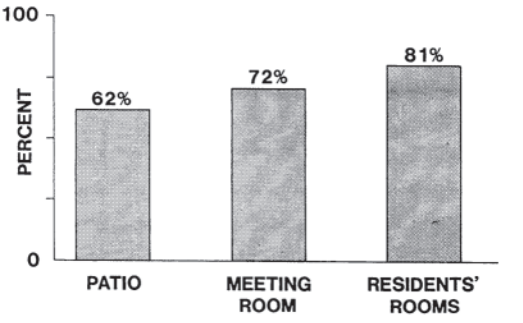

Figure 1. Location pets allowed to visit within facility

5. had Project PUP volunteers as sources for pet visitation (65%) more often than other sources (35%)

Project PUP Volunteers

1. had participated in the program an average of 10.2 months
2. visited an average of 2.1 different nursing homes each month
3. felt that the frequency of the visits they could make was just right (85%)
4. felt that they were adequately prepared (100%) by the screening process and practice visits (requirements for participation in the program)

The nursing homes were basically very open as to where the Project PUP volunteers and pets could visit (see Figure 1), and much of the time would have a staff member accompany the volunteers during visits (see Figure 2). Dogs were more frequently used (93%) in visits than were cats (22%) (see Figure 3).

Volunteers were described by nursing home directors as courteous (88%), reliable (84%), late (7%), and kind/caring (84%).

Figure 4 shows that nursing home directors expected problems at a far higher rate than actually occurred. There were no complaints from residents or employees. Considering the number of volunteers and pets making visits each month to these 58 nursing homes, the results seem to be within quite acceptable limits.

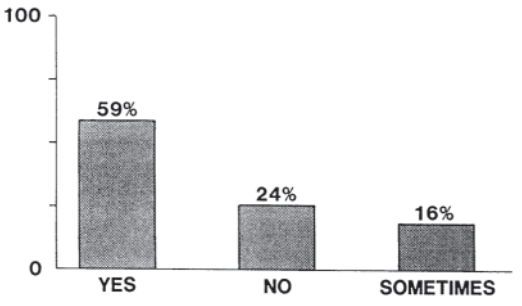

Figure 2. Frequency with which staff accompany volunteers.

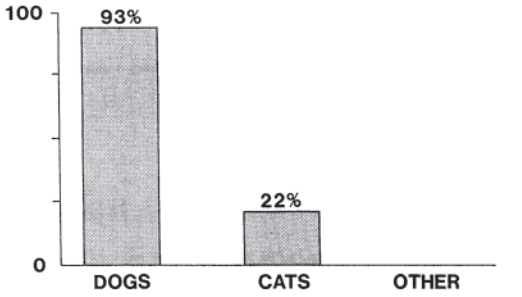

Figure 3. Types of pets used on visits

NURSING HOMES (N=58)	% RESPONDING PROBLEM EXPECTED TO OCCUR	%RESPONDING PROBLEM OCCURRED
ANIMAL ODORS	12%	3%
BARKING/NOISE	10%	3%
LACK OF DISCIPLINE	12%	3%
FLEAS	17%	2%
ANIMAL ACCIDENTS	24%	5%
RESIDENTS' FEAR OF ANIMALS	24%	3%
DAMAGE TO PROPERTY	2%	0%
COMPLAINTS FROM RESIDENTS	15%	0%
COMPLAINTS FROM EMPLOYEES	6%	0%
PETS GET IN WAY	4%	0%
INCREASED WORKLOAD	2%	0%
INJURY TO PETS	6%	0%

Figure 4. Problems expected and actually experienced by nursing homes

Figure 5 contains perhaps the most revealing information obtained from the surveys of both the nursing homes and the Project PUP volunteers. Both surveys asked for feedback on perceived benefits to the nursing home residents. All responses were positive, with the nursing home respondents rating the benefits of the program equal to or greater than the volunteers in 9 of 13 areas. The greatest benefits were within the areas of giving residents something to share, providing a source of affection, and increasing fun, enjoyment, and happiness. Thirty-one surveys contained additional unsolicited comments about the value of the program.

DISCUSSION

This study attempted to provide some insights into the value of pet-facilitated therapy (PFT) to a large number of residents (7,500) in a large number (70) of nursing homes over an extended period of time. The similarity of the responses of both givers (volunteers) and receivers (nursing homes) of the pet visits would appear to substantiate the value of the Project PUP program. The few problems noted by the respondents were almost invariably accompanied by a statement to the effect that the benefits of the program made the problems minimal in comparison.

Reports from both volunteers and nursing home staff indicate that in a number of cases, as a result of the program, withdrawn, depressed, antisocial nursing home residents have exhibited total changes in personality, becoming active in group social activities and seeking out friends. Other residents who had never spoken while in the nursing home have become conversational after pet visits. Residents who were physically inactive now make efforts to reach and stroke visiting pets.

The following four examples are offered as a sample of the types of responses recorded by nursing home staff and volunteers as a result of Project PUP. They are not scientific studies, nor are they clinical case studies. They simply serve to document some of the perceived benefits of pet-facilitated therapy.

Case 1

A male resident of one nursing home had not talked, moved, or responded to any stimulus since entering the nursing home almost one year earlier. Therapists asked the Project PUP volunteer to bring his dog in to see if it might elicit some response from the man. When

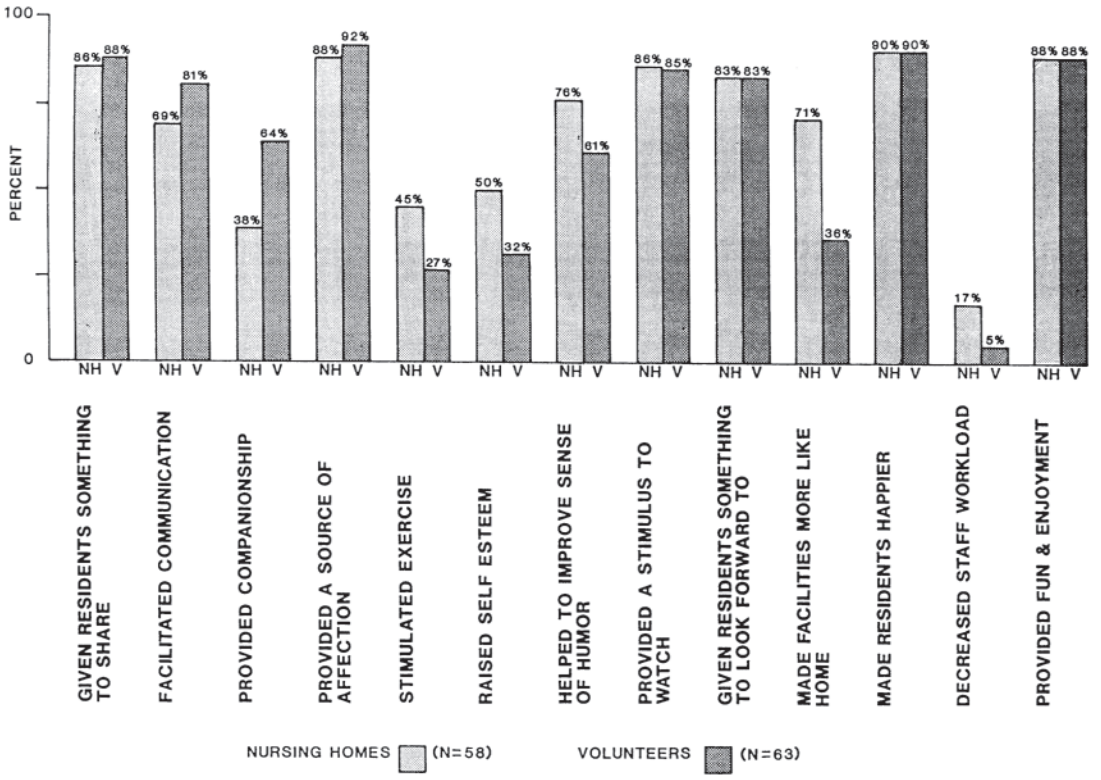

Figure 5 Perceived benefits of Project PUP program

he went to visit, the volunteer carefully put the dog on the bed of the man, who showed no response. The volunteer gently moved the dog around on the man's body, placing the man's hands on the dog's soft fur and rubbing them around a bit. Suddenly the resident yelled, "Get that goddamn dog off my lap!" Shocked, the volunteer quickly tried to remove the dog from the bed. As he did, the man held out his arms for the dog to be returned to him. This was the first time, to the knowledge of the staff, that the man had either spoken or moved since he had been admitted.

Case II

Staff members of one nursing home were quick to credit pet therapy with changing the attitude of a long-term resident. Since being admitted, this female resident had been hostile toward anyone who approached. She fought the staff, refused to cooperate, wanted no visitors, and spoke to no one. She maintained that attitude until the day a Project PUP volunteer asked, from the doorway of the room, if she would like to visit with two small dogs. The woman agreed reluctantly at first. Over a period of time, she began to welcome the pets' visits openly. Through the socialization provided by the pet visits, she gradually changed and is now much more cooperative and pleasant. She now smiles, tugs at the nurses' uniforms, and occasionally mouths,"I love you." She sometimes joins in activities with other residents. On a recent visit, the volunteer, who had become quite attached to the resident, was discouraged from stopping in her room because the woman was very ill. The staff indicated that they were not sure if she would live through the weekend. The volunteer asked for just a moment with her. She put one of the dogs on the bed with the woman and placed the woman's hand on the dog. The volunteer whispered into the resident's ear, "You need to get better soon because I'll be bringing my dogs back next week." The next week the resident met the volunteer and the dogs at the front door of the nursing home.

Case III

According to a report by a Project PUP volunteer who had just made her first nursing home visit, she had hesitated to approach a nursing home resident who was sitting in a wheelchair, rocking back and forth,

sucking on a blanket, and making a low, groaning sound. The volunteer felt that the woman would probably show no reaction to the visiting cat. But when the cat was placed in front of the resident, she looked up and said clearly, "What a lovely pussy!" The staff member in attendance at the visit told the volunteer that the woman had never spoken in the two years that the staff member had known her to be in the nursing home.

Case IV

Bridgette and Gidgette, two little black poodles, do a circus show for nursing home patients. After one of their shows in a nursing home, two residents, neither of whom had spoken during their two years of residence, turned to each other and talked excitedly about what they had just seen. According to the staff, two years later these two residents continue to look forward to visits by the two poodles and to talk about them for days before and after the visits.

The most highly rated benefits from the Project PUP program appear to relate to a general area that might be termed as "improved quality of life," something that cannot be overlooked when we consider the well-being of persons who reside in nursing homes and similar facilities. As Dr. Michael McCulloch said, "When we can no longer cure, our efforts to comfort must always prevail" (McCulloch, 1985).

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NEWS AND ANALYSIS

NIH TECHNOLOGY ASSESSMENT WORKSHOP

On September 10 and 11, the National Institutes of Health organized a Technology Assessment Workshop to evaluate the status of pet therapy and the health benefits of pets. In general, the evidence presented was based on small samples, and some presenters and participants were cautious about pushing the benefits of pet ownership beyond the somewhat limited data. However, one interesting theme came through—the role pets play in the development and maintenance of human nurturing behavior. Aaron Katcher addressed this in the section on the health benefits of pets for children and discusses the broader aspects of nurturing in this issue. A longer report of the workshop will be carried in the next issue of *Anthrozoös*.

FIFTH INTERNATIONAL CONFERENCE ON HUMAN-ANIMAL ENVIRONMENT INTERACTION

Preparations are underway for the Fifth International Conference on the Human-Animal Bond. It will be held in Monaco on the French Riviera in November, 1989. The organization of the conference will be directed by AFIRAC (23 rue du Cherche Midi, Paris 75006) but, in North America, further information can be obtained from Linda Hines at the Delta office in Renton, Washington (P.O. Box 1080, Renton, WA 98057).

PIT BULL TERRIERS

A workshop on the pit bull terrier controversy, sponsored by the United Kennel Club, was held at Tufts School of Veterinary Medicine on September 18, 1987. This was a follow-up of a workshop held in July of 1986 *(The Pit Bull Terrier Controversy, Tufts Center for Animals, 1987)*. The first segment consisted of presentations by Dr. I.Lehr Brisbin (University of Georgia), Dr. John C.Wright (Mercer University, Georgia), and Dr. Randall Lockwood (Humane Society of the U.S.).

Dr. Brisbin presented data on relative bite statistics, on the jaw and body structure of pit bull terriers, and on biting behavior. The relative statistics by breed are, according to Dr. Brisbin, seriously flawed. Even if the actual bite data are accurate, the total number of dogs of each breed (the denominator) is hopelessly inaccurate. Dr. Brisbin provided some figures that he had obtained on the relative registration rate of different breeds of dogs (based on an analysis of advertisements for dogs placed in over 300 newspapers from 129 cities around the United States in the summer of 1985). He found that 76.3% of the average AKC breed is registered. However this figure falls to 58.5% for German Shepherds and Huskies and falls even further to 39.7% for pit bull terrier breeds (AKC and UKC). Accordingly, registration statistics are an unreliable index of the general population, and reported relative bite-rate statistics by breed that use registration statistics have to be recalculated in favor of the pit bull terrier. For example, one study of human fatalities from dog attacks between 1975 and 1980 would, according to Brisbin's corrected calculations, have ranked Malamutes, St. Bernards, Huskies, and Great Danes as three to four times more dangerous than pit bull terriers. Pit bull terriers would have been ranked below German Shepherds and just above Golden Retrievers.

Dr. Brisbin then dealt with the issue of biting strength and summarily dismissed any figures on bite strength in pounds per square inch as utter nonsense. He also noted that pit bull terrier skulls showed no remarkable features that would support any claims that their bite is more powerful than any comparably sized dog. He also argued that claims that pit bull terriers bite and tear, rather than just biting and holding, are unsupported by data. He uses pit bull terriers to catch wild hogs, and his dogs just bite and hold without breaking the skin. He also argued that dog fighters do not select for aggression but for gameness, and that several very game dogs show little aggression either in the dog fighting pit or in the home. Finally, he noted that in a number of cases involving aggression to young children, the children were behaving very much like prey.

Dr. Wright discussed the issues of bite severity and dog aggression. He noted that one could define bite severity in terms of the wound severity (needing sutures, needing hospitalization) or the more subjective attack severity. These two are not necessarily correlated. From a public health perspective, attack severity would be a more useful parameter in eliminating dangerous dogs. Aggression could be broadly divided into fear-related aggression (which does not seem to be related to breed or sex) and dominance aggression (which is predominantly a problem in males,

especially intact males). Dr. Peter Borchelt in the audience also mentioned protective aggression and escalated play as two additional categories that might lead to bite problems. Dr. Wright noted that male dogs were responsible for 70% of bites, with intact males accounting for 60% of all bites. He noted that there have been no behavioral studies on pit bull terriers.

Dr. Lockwood described the various influences on bite behavior, including genetics, socialization of the animal, training of the animal, supervision of the animal, and, finally, the behavior and supervision of the victim. For example, it is essential to socialize a dog to regard adults and children as part of its social group. He then analyzed 28 recent fatalities due to dog attacks, of which 20 involved pit bull terriers. Some of the data was quite remarkable as shown in the list of characteristics below:

10/20 pit bull owners were males between 20 and 25
1/20 pit bull owners was a female
7/20 pit bull owners had violent crime records
0/8 owners of other breeds had prior criminal records
11/20 pit bull owners were either involved in dog fighting or had criminal records
11/20 pit bull terriers showed evidence of being abused
13/13 dogs for which information was available had not been neutered
0/20 pit bull terriers had been licensed
2/20 pit bull terriers had been vaccinated
10/14 pit bull terriers for which information was available had been involved in attacks on humans before the fatal attack
10/20 pit bull terriers and 6/8 of the other breeds were chained at the time of the attack
13/20 pit bull terriers and 8/8 other breeds attacked children
15/21 children were unsupervised at the time of the attack

Dr. Lockwood commented that the data clearly showed that a certain type of owner was overrepresented in these statistics—namely males with criminal records who tended to abuse the dogs and who, at best, neglected to supervise their own children or protect neighbors' children adequately. He also raised questions about the effect of chaining an animal, since 57% of the dogs were chained at the time of the attack.

The remainder of the workshop consisted of presentations by two representatives of the press and by individuals involved in the legislative response to the issue, including Mr. Fred Miller, President of the UKC. The reporters noted that over half the stories on pit bull terriers over the past nine years had been written in the last two years. The topic was certainly newsworthy in that the article in *Sports Illustrated* had produced over 250 letters (compared to 10–15 for an average story). In the following discussion, it was clear that press coverage of the topic was a sore point for many in the audience. Both reporters were criticized for being part of a biased and unfair press coverage.

During the legislation session, it was noted that the pit bull terrier controversy had served to focus attention on animal control programs and problems. In Massachusetts, for example, the City of Boston had licensed only 3,400 dogs (approximately 5% of the total dog population in the city) and had a relatively small budget for animal control compared to comparably sized cities elsewhere in America. A subcommittee of the Massachusetts legislature, it was noted, would be promoting a bill to establish a statewide Animal Control Commission with adequate authority and funding to ensure more effective animal control, to ensure training of animal control officers, and to address the dangerous and potentially dangerous dog issue. Meanwhile, the controversy was having an impact on breeders. Fred Miller said that pit bull breeders who registered their animals with the UKC were cutting back on breeding. In 1984, the UKC registered 34,000 American Pit Bull Terriers but this figure fell to 23,000 in 1986 and would be even lower in 1987. He also noted that the problem was not a "dog" problem but was a "people" problem. The UKC supported strong "vicious dog" or "dangerous animal" legislation that is not breed specific. Miller also argued that the news media had blown the situation out of proportion. Where comparative breed-specific bite records have been kept, the so-called "pit bull" ranks anywhere from seventh to eleventh place.

In sum, the general consensus of the day was that breed-specific ordinances are not the answer, but that town, county, and state authorities should pass *and* enforce dangerous dog measures. One example of the lack of effect of breed-specific ordinances could be seen in Lynn, Massachusetts, a city that had passed an ordinance restricting pit bull terriers. A Lynn veterinarian reported that he had had over 300 pit bull terriers in his practice last year but that, this year, the number had fallen to 200 and he was not seeing any pit bull puppies. However, at the same time, the number of Rottweilers had climbed from 20 to 150! In other words, the breed-specific ordinance had reduced the number of pit bull terriers but it appeared as though this decline was easily matched by the increase in Rottweilers.

IN THE LITERATURE

BOOK REVIEWS

Don't Blame the Indians: Native Americans and the Mechanized Destruction of Fish and Wildlife. T.Williams. South Hamilton, MA: GSJ Press, 1986. $12.95.

This book deals with an issue that is seldom addressed—the destructive effects resulting from the special status afforded to native Americans that exempts them from laws protecting rare and endangered forms of fish and wildlife. Williams makes a well-reasoned and urgent plea for the cessation of the hunting and fishing privileges granted exclusively to American Indians and Eskimos which, he warns, are jeopardizing the continued existence of certain species. Described as particularly affected by this permissive government policy are bowhead whales, some kinds of fish, and bald eagles. But populations of peregrine falcons, whooping cranes, numerous kinds of waterfowl, panthers, black-footed ferrets, grizzlies, and wolves are among others that may also be seriously depleted by continued unrestricted exploitation.

Native Americans, the author makes clear, do not undertake the killing of prey animals using traditional hunting methods, but rather have the weapons of modern technology at their disposal. For example, in their pursuit of whales, contemporary Eskimos:

> *put on their Eddie Bauer down jackets, step out of their oil-heated, color-TV-equipped homes, and converge on migration routes by airplane, snowmobile and ATV. They propel their hunting craft by internal-combustion engine (outboards in spring, cabin cruisers in fall), converse while hunting by two-way radio, dispatch whales with bombs, haul whales onto shore by power winch (p. 26).*

To dispel what he views as misinformation about the natives' careful use of all parts of the slaughtered animal, Williams cites evidence of the wasteful nature of their hunting, fishing, and utilization practices. Even more disturbing are the data he presents about the entrepreneurship of some native fishermen, who fish not for family subsistence or from the dictates of cultural traditions, which the exemption laws were created to protect, but rather for financial gain and with ruthless disregard for conservation of the species involved.

The issues that are raised and implied by the book are as complex as they are controversial. Central to the author's message is the much-debated question about the authenticity of the pervasive image of native Americans as the original ecologists and conservationists—a notion that may have been first projected upon them by whites before it was proudly, and not unjustifiably, taken up again in recent times by the Indians themselves. In the 70s, a prevalent television advertisement featured a tearful Indian who lamented the dominant society's destruction of the living environment his people had so wisely preserved. During the era of "ecological crisis," the idea of the native American as symbol of harmonious relationships with the natural world became firmly entrenched in the popular mind. Some scholars have criticized this view as a misleading stereotype, and many others have argued for its relative accuracy. The debate has not been won by either side, yet the concept persists. Williams denies the idea of the Indian as ecologist, and to support his refutation he relies too heavily upon a small number of selected references for support. For fairer coverage, a counterbalance is needed in the form of some of the reliable firsthand sources which, in many instances, do uphold the idea of the native hunter in harmony with his prey species.

It is far more important for the purposes of the author's argument in this book, however, to concentrate on what the Indian is today rather than dwelling on the past. For there has been a good deal of ideological acculturation to white ways, even in the most traditional native groups, and changing attitudes are supplemented by possession of modern weapons and machinery. The reader should keep the book's title—*Don't Blame the Indians*—in mind. The natives did not cause the habitat destruction or the industrialization that now threaten fish and wildlife. Yet, is this reason enough to let the Indians contribute to their extinction now? This dilemma is the vital focus of Williams' book and, at the outset, readers are fervently asked not to "suspend thought" regarding the emotionally charged issue of native hunting and, above all, not to equate racism with the assertion that Indian people, like other United States citizens, should be subject to the same laws enacted for the sake of wildlife and for the ultimate good of all Americans. To believe that Indians must no longer be treated like over-indulged children with special rights is not racist, Williams argues. Rather, quite the opposite is true. Indians'

interests are best served by joining the rest of the American population in protecting an irreplaceable common heritage.

Ironically, it is those people in our society who attribute great value to wildlife who are most sympathetic to the preservation of native cultures. Thus a dilemma results when the interests of the two conflict, as when the hunting of certain species is believed to be a necessary part of the Indian cultural heritage. Williams, in many instances, denies the real significance of prey species such as whales and fish in the native ethos. But in the case of the role of the eagle in Indian religion, such meaning cannot be dismissed. Fraught with even more controversy than that which surrounds hunting and fishing privileges, then, is the issue of killing these increasingly scarce raptors for purposes of native American worship, an activity the author asserts must be stopped in order to save the species. If eagles are preserved, Williams argues, they can be appreciated and enjoyed equally by future generations of Indians and other Americans.

The writer is at times sarcastic and brusque, as when making fun of the "ashes and sackcloth mood of the nation," and stating that for some Indians the black-footed ferret's "shucked skin made a first-rate medicine bag." This is not a scholarly work; its importance lies in its vital message and its impassioned call for action. One finishes reading it with the hope that the book will be an effective stimulus for further research and for more detailed and inclusive considerations of the subject, complete with citations on both sides of the controversy and even rebuttals from native Americans. As the author points out, in order to help solve the problem, the dominant society must cease easing its guilt by affording special rights to those who have been wronged in the past, and natives must stop dwelling on old injustices. As in all conflicts, communication and education are keys to the understanding that can lead to the solution of problems. It is urgent that the vital issues raised by Williams lead to fruitful dialogue between informed Indians and whites resulting in immediate concerted efforts on behalf of threatened species. *Don't Blame the Indians* is essential reading for all who are concerned with the preservation of American wildlife.

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Animal Sacrifices: Religious Perspectives on the Use of Animals in Science (Ethics and Action Series). Tom Regan, ed. Philadelphia: Temple University Press, 1986. xii+270 pp.

Animal Sacrifices brings the reader a series of papers presented at an international conference on the theme "Religious Perspectives on the Use of Animals in Science" held in London (July, 1984) under the sponsorship of the International Association Against Painful Experiments on Animals (IAAPEA). Editor Regan was chairman at the conference, and informs us in his preface of the criteria for selection of papers: academic integrity, scholarly promise of proposals, and a search for balance. These goals were admirably met, as the essays attest. Two additional sections introduce the conference papers: there is an insightful introduction on "Religions and the Rights of Animals" by John Bowker, and an informative factual survey on "The Use of Animals in Science" by Sidney Gendin. The volume is rounded off by brief biographies of the contributors.

The individual contributors and their presentations are:

"Judaism and Animal Experimentation" (Rabbi Dr. J.David Bleich)
"The Place of Animals in Creation: A Christian View" (Andrew Linzey)
"The Relevance of Animal Experimentation to Roman Catholic Ethical Methodology" (James Gaffney)
"Animal Experimentation: The Muslim Viewpoint" (Al-Hafiz B.A.Masri)
"Hindu Perspectives on the Use of Animals in Science" (Basant K.Lal)
"Noninjury to Animals: Jaina and Buddhist Perspectives" (Christopher Chapple)
"Of Animals and Man: The Confucian Perspective" (Rodney L.Taylor)

This reviewer found the greatest value of the book to be the wide scope of religious traditions represented. Bowker notes in his introduction that "religions have radically different anthropologies…[and] it is predictable that they will have different accounts of animal nature. And from those differences, different estimates and evaluations of the status of animals…will certainly emerge." Further, "It is *essential* to recognize and grasp the fact that religions are deeply different, not just in *what* they say but in *how* they say it, and in what they regard as an appropriate argument." Nonetheless, Bowker is able to distill six "points of agreement" from the essays, which I reproduce here in abbreviated form:

1. All religions agree that their traditions do not have a concept of animal *rights,* but that animals do have valid claims on us.

2. To ignore those claims is to do long-term damage to the stature of being human.
3. The validity of the claim of animals upon us is reinforced by the sense of the unity of life.
4. Death is not the greatest evil one can imagine.
5. The various uses of animals must be differentiated. Some may be justified, whereas others cannot be.
6. The cultivation of pity, compassion, identification, and sympathy for animals is not an expression of the pathetic fallacy but a necessary part of growing up.

Few readers indeed will have had extensive contact with *all* of the religions represented. What may be familiar argumentation to an adherent of a certain tradition will be an exploratory voyage to a new acquaintance. It is important to note that, due to the intrinsically conservative character of all religions, ethicists must develop deep roots in their tradition and speak out of it in order to be heard and to have any hope of persuading. Thus the reader will notice that in the case of the contributions representing Judaism and Islam there is a lengthy and at times quite labyrinthian journey into textually transmitted tradition for what at times appear to be meager results. In the case of Bleich's contribution, the notes, allowing for a difference in type size, fully equal the length of the text itself. Still, within the tradition, this kind of precision and nuance is necessary to conviction and persuasion. In other instances, such as Confucianism, there is more appeal to the sayings of great men, as is fitting. Elsewhere, as is the case with the Hindu tradition, the theorist works from the "general tenor of Hindu thought" and ritual. The Buddhist in turn works with tales and anecdotes as well as authoritative texts of various sorts.

To different degrees, but with noticeable congruency, each of the essayists finds the tradition for which he speaks to have significantly benign attitudes, either enjoined or exampled, toward animals. This cannot be dismissed as simply a case of finding what you are looking for: the thoroughness of the research obviates that conclusion. Still, it does raise the question, If the world's major religious traditions exhibit such attitudes toward animal life, and if their adherents represent such a significant portion of the population, how could we be in the midst of a crisis such as the one documented in Gendin's prefatory survey? Certainly it is to the point to remember that the "traditions" themselves speak from a pre-scientific and pre-tech no logical world, a world in which the sheer possibility for abuse of animals on a great scale was much reduced. Those who would speak for animals today must, after looking into the resources of their tradition, speak creatively from that base. It is here that the work still needs to be done, and it will be a difficult and prolonged struggle, made even more difficult by the progressively weaker hold that religious traditions enjoy among their followers in the modern world. So another pertinent question could be put this way: If the world's religious traditions do in fact offer support for more benign attitudes and practices than we witness today, who has or has not been speaking for them, and to whom? As part of a reply one can only hope that this volume reaches the widest possible audience. It will serve as an excellent tool inside and outside the classroom. Editor Regan notes that curricula in religious ethics have largely not asked the questions raised in this volume; a sleeping giant needs to be roused. *Animal Sacrifices* is a judicious and timely nudge on that giant.

My underlinings were many, but include notably the statement of Rabbi Bleich: "cruelty to animals consequentially engenders an indiscriminately cruel disposition. Acts of cruelty mold character in a manner that leads to spontaneously cruel behavior…. Practicing kindness *vis-à-vis* animals has the opposite effect and serves to instill character traits of kindness and compassion. Development of such traits results in spontaneous acts of kindness, compassion, and mercy." Al-Hafiz Masri says the same on the basis of Koranic teaching: "Cruelty to animals…generates sadistic characteristics leading to acts of cruelty against fellow human beings." This he bases on the Hadith of Muhammad which says, "Whoever is kind to the creatures of God, is kind to himself." This sentiment has been often noted in past treatments of religious traditions regarding the natural world and, at least to this reviewer, it is a viewpoint not reduced by the counter arguments that (1) the attitude is unworthily self-serving and anthropocentric, and (2) in any case it does not apply in the laboratory where "cruelty" takes on the antiseptic character of its stainless steel surroundings. Surely there is more than one kind of "self-interest." The self-interest of those who see themselves as part of an integrated world of life is not anthropocentric. Our world knows only too well what dubious things can emerge from sterile laboratories. "To the teaching and to the testimony!" (Isaiah 8:20), as the Judaeo-Christian tradition would put it.

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ABSTRACTS

The Archaeology of Animals. S.Davis. London: Batsford, ca. $45 hbk., $24 pbk.

The distribution and morphology of animals in past times can tell us much about changes in the earth's climate, the origins of domestication, and the like. Davis identifies how knowledge of this sort may be built up from the study of dry bones and other animal remains. The first part of the book contains chapters on the nature of bone and the factors influencing the survival and accumulation of bone fragments and collections. Systematic and careful analysis and experimentation enables the archaeologist to reconstruct past environments and seasons and to make startling deductions from a jawbone and a few teeth. The second half of the book consists of an elaboration of the use of these techniques to explore the determination of hunting behavior, the origins of domestication, and the agricultural uses of animals for dairy and traction purposes.

The Criminal Prosecution and Capital Punishment of Animals. E.P.Evans. London: Faber, 1987. ca. $8.

This book was originally published in 1906, but copies of the original edition are hard to come by. The search is well worth it, however, for the book is a fascinating analysis of the legal trials of animals in the Middle Ages. The book's publisher thus does all of those interested in human-animal interactions a major service by reissuing the work. Evans maintains a scholarly tone, with moments of well-judged humor, in exploring the cases in which locusts were excommunicated and pigs were sentenced to death for eating babies. These trials were all conducted in formal (and hence costly) courts, and usually included both a prosecutor and an attorney for the defendant. Accused animals were often housed in the same jails as human criminals. At the most trivial, Evans' stories make excellent cocktail party anecdotes, but they also call attention to human ambivalence about the proper place and status of animals in our society. We may no longer conduct formal trials to sentence pit bull terriers to death, but we are still grappling with the appropriate categorization of animals.

"Dog Ownership: A Complex Web." Deena B. Case (959 Rancho Road, Thousand Oaks, CA 91362). *Psych. Reports* (1987) *60:*247–257.

The author notes that, while dogs are popular and highly regarded, many young dogs do not last a year in a new home before ending up in a shelter. Up to one-third of dogs acquired as puppies are given away by the time they are a year old. The author discusses a theoretical model that could contribute to an understanding of the factors that make up successful dog ownership. In an analysis of computer use, Kling and Sacchi have contrasted two theoretical models—the Discrete Entity and the Web model. Case argues that the Web model may be used as a useful metaphor for dog ownership. For example, in the Web model, potential costs, benefits, and skill requirements are only partially identifiable, and this is certainly true of dog ownership where many owners are unprepared for the time and skills necessary. Dogs are also social objects that are highly charged with meaning, as predicted by the Web model. Another feature of the Web model that is seen in dog ownership is that formal goals, procedures, and features of dog ownership are poor guides to what actually happens.

"Dog Interaction with Persons Receiving Institutional Geriatric Care." C.A.Near, C.R.Dorn, I. Grayson (College of Vet. Med., Ohio State Univ., Columbus, OH 43210). *Journal of the American Veterinary Medical Association* (1987) *191:*300–304.

A prospective study of 66 geriatric residents in two facilities was conducted to quantitate people-dog interactions. Residents were assigned randomly to sessions with dog activity and to sessions with other activity in a crossover design. This study involved a 12-week pre-study activity period and two 12-week activity periods, one before crossover and one after crossover. Systolic and diastolic blood pressures, psychologic evaluation of case histories, and other health and social variables were measured on all residents for dog activity and for other combinations of programmed activity sessions. Frequency of attendance in both facilities was higher at dog activity sessions than at other activity sessions ($p<0.01$). Resident systolic blood pressures were lower in one facility during dog activity ($p<0.02$). Combined pre- and post-activity systolic and diastolic blood pressures at the same facility were lower when residents had 12 weeks of dog activity before 12 weeks of other activity ($p<0.04$). There were no significant differences in residents' blood pressures between measurements before and after dog activity (treatment mode) or between measurements before and after other activity. Psychologic scores of residents in both facilities were not significantly different between periods of the study. Of the nine types of interaction between the residents and the dog, grooming and touching were the two most commonly used by residents.

"A Pet Loss Support Group: Evaluation of the First Year." L.A.Hart, B.Mader, C.A.Rivero, B. C.Hart (School of Vet. Med., U.C., Davis, CA 95616). *California Veterinarian* (1987) *March/ April:*13–15.

Small animal practitioners are becoming increasingly aware of the need to offer guidance and support to their clients who have experienced an emotionally upsetting pet loss. Typically, however, they lack training in psychological counseling. In most circumstances, referral of the client to a psychologist or psychiatrist is considered awkward by the veterinarian. To provide a more acceptable alternative, a pilot pet loss support group was established as a collaborative project between the Human-Animal Program and the Sacramento Valley Veterinary Medical Association.

The specific objectives of the program were: (1) to provide responsible veterinary leadership in the area of psychological counseling for clients undergoing pet loss; (2) to communicate a genuine ongoing concern by veterinarians for clients in the area of pet loss, while increasing the effectiveness of private veterinary hospitals in handling emotionally upset clients; and (3) to assess the value of such a group in meeting the preceding objectives by evaluating the project after one year. It was anticipated that, in establishing this as a model program, some guidelines of general value to other veterinary associations could be formulated. In this paper we describe the preparation and procedures followed in establishing the support group, and the results of an evaluation by the veterinarians and participating clients.

"The Influence of Zoo Visitors on the Behavior of Captive Primates." G.R.Hosey and P.L. Druck (Dept. Psychol., Bolton Inst. of Higher Ed., Dean Rd., Bolton, UK). *Applied Animal Behavior Science* (1987) *18:*19–29.

One of the principal features of zoos, which sets them apart from groups of animals in the field or the laboratory, is the daily arrival of large numbers of human visitors. These visitors provide an audience for the animals; they are potential intruders or threats; they are a possible source of food; or they are just a source of interest. However, very few investigations have attempted to determine how these visitors might affect the animals, if at all. In this study, data were collected for four behavioral measures (number of interactions with the audience, number of interactions with cagemates, levels of locomotory activity, and spatial dispersion in the cage) in 12 different species of primates under five audience conditions (no audience, small active groups, large active groups, small passive groups, and large passive groups) in an attempt to quantify the effects that an audience of zoo visitors has on primates kept in zoos. The animals attempted to interact with audiences in all audience conditions, but significantly more behaviors were directed at active than at passive audiences, particularly if the active audience were large. The presence of the public appeared to have no significant effect overall on the frequency of interactions between primates in the same group. However, locomotory activity was significantly increased in animals confronted with both large and small active audiences, and there was also indication that animals spent more time at the front of the cage when a large active audience was present. It was concluded that zoo primates do not habituate completely to the presence of the public. On the contrary, the mere presence of zoo visitors influences primate behavior to a greater extent than has previously been thought.

"Book Review of Hoofbeats and Society" (author: E.A.Lawrence) N.Grace (Harvard Univ., Cambridge, MA 02138). *Journal of American Folklore* (1987) *100:*352–353.

The reviewer calls the book a ground-breaking effort into the broader and symbolic implications of animals in human life. She comments that folklorists "assume that animals are an important part of the lifeways of the people" studied, but that they are rarely identified as "a significant component of a people's worldview." Folklorists must be more aware of the great symbolic and psychological value an animal may hold to a particular group or society.

"Fear of Animals: Correlations between Fear Ratings and Perceived Characteristics." H.Merckelbach, M.A.Van Den Hout, G.M. Van Der Molen (Dept. Med. Psychol., Univ. Limburg, P.O. Box 616, 6200 MD Maastricht, The Netherlands). *Psychological Reports* (1987) *60:*1203–1209.

It has been proposed that fear of certain dangerous animals such as snakes and spiders confers an evolutionary advantage. Indeed, in primates, there does appear to be a genetic predisposition to fear certain dangerous animals, and this has led to the hypothesis of "preparedness." There is, however, disagreement over whether the fear response is induced by a "complete representation" or by specific releaser stimuli such as speed, sudden movement, or strangeness of appearance. The present study of 271 students found that there were significant correlations between self-reported fear of animals with such perceived characteristics as "strangeness" in a particular dimension (such as visual or tactile). Interestingly, there

were significant correlations of predictability and odor with fear for women but not for men. The authors conclude that their results indicate that fear of animals is associated with a limited set of characteristics rather than a complete representation.

"Animals at Home—Pets or Pests: A Review," J. K.Kirkwood (Dept. of Vet. Sci., Inst. of Zoology, London, UK). *Journal of the Royal Society of Medicine* (1987) *80:*97–100.

The author comments that although he is reviewing the potentially harmful aspects of pet-keeping, he considers that the risks are low and that there are many benefits. The author briefly reviews problems from bites, nuisance, damage to livestock and the environment, and zoonoses.

"Childhood Cruelty to Animals and Later Aggression against People: A Review." A.R.Felthous and S.R.Kellert (Dept. of Psychiatry and Behav. Sci., Univ. Texas Medical Branch, Galveston, TX 77550). *American Journal of Psychiatry* (1987) *144:*710–717.

The existing literature on the relationship between childhood cruelty to animals and later violence against people appears to be inconsistent. The authors review ten controlled studies that found no clear association and four controlled studies that did. This might lead to the conclusion that the relationship has not been demonstrated but, on closer examination, factors can be identified that contributed to the apparent contradiction. These include too broad a definition of cruelty (such as swatting horse flies) and too broad a definition of personal aggression, where persons who show a single violent act or threat are included. The authors suggest that aggressive persons should be restricted to those who show recurrent impulsive aggression. Many of the negative studies also collected data on animal cruelty from the review of charts rather than from direct interviews.

"Human-Animal Interactions." P.H.Hemsworth and J.L.Barnett (Animal Res. Instit., Dept. Agric. Rural Affairs, Werribee, Victoria, Australia). Veterinary Clinics of North America. *Food Animal Practice* (1987) *3(2):*339–350.

This article examines the fear of people displayed by domestic livestock and its consequences. Little attention has been paid to the role of the stockperson in agriculture, and yet several studies have shown that the human-animal interaction can make a substantial difference in the yield. In recent times, with the growth of intensive practices, agricultural training has emphasized technical knowledge and skills and stockmanship has been neglected. The authors review various studies, concentrating on the pig. For example, one series of studies showed that corticosteroid responses correlate with fear of a human stranger and that pigs showing a high level of fear displayed marked detrimental effects on productivity (10% reduction in growth rate, 60% reduction in pregnancy rate). There is also evidence that there is substantial variation in the level of fear of people shown by pigs on different farms. Similar trends have also been demonstrated for poultry and dairy cows.

"Philosophy of Wolf Policies. I. General Principles and Preliminary Exploration of Selected Norms." A.Naess and I.Mysterud (Dept. Philosophy, Univ. Oslo, P.O. Box 1116, Blindern, N-0316, Norway). *Conservation Biology* (1987) *1(1):*22–34.

A philosopher and biologist present some preliminary explorations of values and norms of importance in the wolf-man relationship. The presentation is centered around problems seen on the modern wolf range in Norway, where there should be a mixed community of sheep, wolves, and men. At present there are 3.2 million sheep, 4.1 million men and 5–10 wolves. The wolves are confined to a small area containing small scattered sheep farms. The owners, with local approval, do not accept the wolves. What norms should be considered in the process of changing this wolf/sheep ratio slightly in favor of wolves? How can we work today for a viable population of wolves? This article presents some general principles and philosophical methods for discussion in the spheres of ethical attitudes and opinions in normative conflicts concerning wolves. An understanding of the logical priority of the normative system, and the need for it in a systemic analysis, is important. This should be used extensively as an analytic tool in the many intricate problems of wolf management, some of which go all the way down to the rock bottom of philosophy and political ideology.

"Pet Therapy in a Nursing Home." A.Beck (School Vet. Med., Univ. of Pennsylvania, 3800 Spruce, Philadelphia, PA 19104). *JAMA* (1987) *257:*844.

The author is responding to a question about the effectiveness and problems associated with pet therapy.