Comments

The Future of Research into Relationships Between People and Their Animal Companions

Boris M. Levinson, Ph.D.

In sharp contrast to prevalent public attitudes of 20 years ago, the field of animal-human relationships is now respected as a legitimate area of scientific investigation. However, it has not yet evolved into a full-fledged discipline: a specific term for this discipline, a body of theory, and a methodology of its own must still be developed. This methodology should make use of both the intuitive and scientific approaches in order to encompass the full richness of animal-human interaction. Four main areas of investigation would be fruitful at this point: (1) the role of animals in various human cultures and ethnic groups over the centuries; (2) the effect of association with animals on human personality development; (3) human-animal communication; and (4) the therapeutic use of animals in formal psychotherapy, institutional settings, and residential arrangements for handicapped and aged populations.

An ambivalent relationship has existed between humans and animals since ancient days, but we may now be ready to translate into reality the myth of the Golden Age when animals and humans lived at peace with each other.

It was only 20 years ago, at a meeting of the American Psychological Association, that I first presented a paper on the "Dog as a Co-therapist" (Levinson, 1961). The reception was lukewarm. While some accepted the ideas, others met them with ridicule, even inquiring as to whether the dog shared my fees. I became known as the *dog's* co-therapist.

Obviously, much water has flowed under the bridge since then. The problems raised in my original paper and in subsequent articles have come to be taken seriously by society at large. Even the academic world has granted recognition to our field by awarding doctorates in the discipline of animal-human relationships. However, in spite of these promising beginnings and accomplishments, it seems to me that this field has not become a true discipline as yet.

Perhaps there are advantages to this rather ambiguous status, since our attempts to define our field help us to remain spontaneous and flexible in both methodology and subject matter. How, for example, do we account in our research for such factors as the intimate,

Boris M. Levinson is Professor Emeritus of Psychology at Yeshiva University. He resides at 86-35 Queens Blvd. 7K, Elmhurst, NY 11373. *This article was presented as an invited address at the First International Conference on the Human/Companion Animal Bond at the University of Pennsylvania, Philadelphia, PA on October 6, 1981, in response to receipt of the Delta Society Achievement Award for Contributions to the Study of the Human/Companion Animal Bond. He is also Director of Human/Companion Animal Therapy at Blueberry Treatment Centers, Inc., Brooklyn, NY.*

playful, idiosyncratic interrelations between animal companions and their owners? What are we to do with data that arise spontaneously? How can we measure these? Is it possible that our experimental and statistical studies cancel out these most important interchanges?

It seems to me that the relationship between people and their animal companions can encompass almost all areas of human behavior. In order to begin careful studies, the domain of possible investigation has to be delimited and given a focus. We should decide what we are trying to do and in what field we are operating. Is it comparative psychology (Denny, 1980; Dewsbury, 1978), ecological psychology (Bronfbrenner, 1979), environmental psychology (Baum, 1980); Stokols, 1978), ethology (Barnett, 1981; Fox, 1974), sociobiology (Barlow, 1980; Wilson, 1975, 1980) or social psychology (Berkowitz, 1980; Goldstein, 1980)? I believe that our work actually lies in none of these established disciplines, since none of these can encompass all the concerns of our new science. Instead, we will have to look for new insights, new definitions, and new boundaries. Above all, we will have to place research in this field in a historical and comparative perspective. One possible definition of this field might be that it is the science of human/companion-animal/environment interrelationships.

On the one hand, this discipline touches upon problems that might well be investigated by rigorous, scientific experimentation. On the other hand, it involves enquiry where measurement cannot bring answers and intuition must reign — a path of study used by artists, as well as by generations of ordinary people. Both approaches are, in my opinion, equally valid and equally worthwhile. The intuitive method looks at an animal as a teacher and friend, while the scientific method looks at an animal as an object of curiosity.

Intuitive Method

I believe that early humans were aware of a mysterious something that united them to animals and indeed to all living things. People saw the natural world to which they and the animals belonged as the indestructible source of life. Animals were brothers in nature (Jensen, 1963), from whom humans could learn much and through whom they could achieve some measure of acceptance of their own mortality. Our early ancestors regarded animals as rational beings and as partners in life (Giedion, 1962). Even though ferocious, animals were seen as younger companions who, while perhaps not as skilled as humans (although some were certainly more skilled in certain ways), were entitled to similar respect and attention. In other words, animals were first viewed as equals.

Early humans understood that "there is a continuum between animal and man" (Fox, 1974, p. 27) and acted accordingly. There was an understanding of how an animal felt and a corresponding respect for the animal's feelings and drives. Animals were perceived as having intimate thoughts and aspirations, as well as unseen powers and connections with nature that humans did not possess (Tylor, 1958). In this sense animals were viewed as superior — sources of wisdom and strength. Early humans, therefore, began to worship animals as representatives of the natural forces that determined their ultimate destiny. Totem animals, for example, could be invoked to intercede with nature on their worshipper's behalf and thereby provide some protection against death in a very dangerous world.

Primitive humans may have experienced mental images of dead companions (Siegel, 1977) and assumed that these were evil spirits. They therefore had to dispose of the feared dead body (which taunted them in their dreams) in an *honorable* fashion so that it would

not desire to return to do harm. Help was needed to pacify the dead person and send the still-living, unattached, and potentially malevolent spirit happily on its way into the netherworld. Humans may have turned to animals for guidance in this procedure, using a particular animal which, as a god, had supreme powers to serve as a psychopomp or guide to the netherworld. The rituals that were evolved to bring about this neutralization of a potentially evil spirit considerably alleviated early Homo sapiens' anxiety about death (Leach, 1961).

Animals, therefore, have fulfilled one of our deepest human needs — the need to feel safe — and have long served as a symbol of power and nurturance. They have also functioned as an externalization of man's control over his own evil impulses (the "wild" animal with its power to kill is converted into a savior that keeps killer man under control). Such a relationship, with its deep unconscious roots and its elements of empathy and identification, does not lend itself to study solely by objective observation and measurement. There may be an unconscious communication between humans and their animal companions of which neither humans nor possibly their animal companions are aware until a crisis such as death occurs. The intuitive ties between humans and animals require intuitive methods of study, if only to delineate those questions that we might want to try to investigate in more scientific ways.

There are many such questions. For example, How does an animal predict when its master is due to return home? How does it become aware of the death of its master, even though the death may have occurred hundreds of miles away? What is the meaning of an animal's mourning for a lost master? How does an animal know when it is about to die? What is the nature of the mourning that an animal does for another animal? In order to address these questions, we have to learn more about processes like psi trailing, extrasensory perception between humans and animal companions, and animal hypnosis, because these questions presuppose the existence of certain feelings and cognitions on the part of animals (Griffin, 1981). Our certainty that these exist derives from our intuitive knowledge of the animal companions we have lived with, observed, and read about over the ages.

The Scientific Method

The second approach, the scientific one, is a method by which we seek to answer some of the questions suggested to us by our intuitive knowledge. It is a method that seeks to place our knowledge within a logical structure or system to discover the underlying mechanisms of animal-human relations and thereby bring these relations into the domain of natural law, rather than relegating them to the realm of magic, symbolism, and fantasy.

In order to do useful scientific research, we first need an adequate theory to generate questions and methods. Then, the results must be very carefully evaluated. The model we should be seeking should allow both naturalistic observations and controlled field and laboratory work. We need longitudinal, cross-sectional as well as experimental studies. We also need replication of studies. We must also remember that there is an interaction, *i.e.*, a reciprocal relationship between the animal companion and its master and that each causes effects in the other.

While I wish to stress most forcefully the need for vigorous research in our field, no matter how we may define it, I wish to stress with equal vigor that the non-experimental, non-replicable observations made by generations of animal companion owners have contributed immeasurably to the development of our field and indeed may actually have brought it into being.

Scientific research in the field of animal-human relationships, by whatever name we choose to call it, has been very meager to date. However, there have recently been promising beginnings (Bustad, 1980; Corson and O'Leary-Corson, 1980; Fogle, 1981; Katcher and Weir, 1977), although this field remains a stepchild in terms of research interest, financial support, and prestige. There are numerous methodological challenges, challenges that have sometimes been met in very inadequate ways. I have discovered, for example, that a favorite study of investigators into human-animal relationships is the comparison of the personality traits of dog and cat owners with those on non-owners. However, this has been done without specifying in exact terms how such personality traits were to be defined and measured, so that the reliability and validity of the measures used left much to be desired and, consequently, invalidated the subsequent research involving these measures (Allen *et al.*, 1979; Brown *et al.*, 1972; Guttman, 1981; Kidd and Feldman, 1981; Wilbur, 1976).

Similarly, sampling techniques were such that the findings could not be generalized to other populations. Important variables of the animal owners such as age, marital status, education, intelligence, and socioeconomic status, if not specified, prevent us from knowing whether the sample studied is representative of more than a particular group.

The characteristics of the companion animals also have to be specified when comparing animal owners with non-owners. We forget that each human and each companion animal is unique. Are we talking about the owner of a Pekingese or a Great Dane, or of a Siamese or an alley cat? Suppose we do secure statistically significant differences between the two groups (*i.e.*, owners and non-owners). In this instance, we must remember that these are quantitative differences, and we must not forget about the qualitative differences that may concurrently exist. We must also consider the contexts in which the subjects find themselves. Are they comparable? And if not, are our findings of any practical value in the absence of assurance of comparability between samples?

However, in spite of my criticism of the various studies, because of the great diversity of instruments and techniques used and the lack of randomized samples, the mere fact that similar results have appeared in many different studies is significant. This should increase confidence in the field and in the results obtained, since these have been secured despite disparate measures and populations (Allen *et al.*, 1979; Anonymous, 1976; Brickel, 1980, 1981; Corson and O'Leary-Corson, 1975; Kidd and Feldman, 1981; Levinson, 1969; Mugford and M'Comisky, 1975; Wilbur, 1976).

What, then, do I see as fruitful avenues for the researcher in the field of animal companion-human relationships? From the vantage point of a participant observer, I see four distinct areas for possible concentration, although these are by no means all-inclusive in terms of the questions we need to ask. These areas are: (1) the role of animal companions in various human cultures and ethnic groups from earliest recorded history to the present; (2) the effect of association with animal companions on the development of character, emotions, and attitudes in humans; (3) human-animal companion communication; and (4) the therapeutic effects of associating with animal companions.

Obviously all of these research areas are interrelated; if we approach one we cannot help but touch upon the others. If we discover a new facet in one, we cannot help but see other problems in a new light. For the sake of brevity and clarity, however, I will limit myself to looking at each of these rubrics separately and leave it to the synthesizers in the field to elucidate their interrelationships.

The role of animals in human cultures

We are continually being made aware of the mysterious thread that unites all life. W. Horsely Gantt (cited in McGuigan, 1981) found that the approach of a human to an animal increased the animal's "heart and respiration rate," while subsequent contact such as stroking had a tranquilizing effect. Gantt hoped to identify the modality by which this effect was produced, and he sometimes mused that if he systematically eliminated all the known stimulus modalities he might come upon a special kind of energy: "Is the effect of person transmitted by the known senses, or is it transmitted through radiation or some kind of as yet unmeasured waves with unknown laws of transmission?" (p. 417).

Our relationships with the animal kingdom began in the very distant past, millions of years ago. Our attitudes to our neighbor animals have taken millions of years to develop. As humans began to differentiate themselves from the animal kingdom, various elements of these attitudes remained with them to agitate, confuse, and occasionally enlighten. These feelings were eventually crystallized in art, literature, and philosophy.

When we look at the history of human art, we notice that in the beginning the animal seemed all-powerful and the human a mere fleeting shadow, as seen in cave paintings of the leaping bison and galloping horses at Altmira and Lascaux. Later on, humans came to occupy a more important but still subsidiary role, for example, in the art of the Egyptians, where the bodies of the figures were human and the heads were animal. Still later, humans became supreme and the animals subordinate. We can see this in the art of ancient Greece, where the bodies, such as those of the centaurs, were animal while the heads were human (Clark, 1977).

In separating themselves from animals as they developed symbol-using cultures, humans had to repress their longing for, and veneration of nature (which they were destroying) and to exalt human reason above the "animalistic" qualities that humans shared with the rest of the animal kingdom (*e.g.*, such basic drives as hunger and sex). Medieval and Renaissance paintings depicted animals as humans' servants, pets, hunting targets, and status symbols (*e.g.*, the nobleman with his mastiff). In tapestries we see the introduction of a mythical animal, the unicorn, a pure white, long-horned, gentle creature that seems to represent an attempt to ennoble sexuality and relate it to Christian mythology (which had already made use of a white dove to represent the "Holy Spirit," the principle of impregnation without carnal contact).

In the art of the twentieth century, both human and beast are disembodied and reduced to abstractions, thereby totally disconnecting humans from their own animal nature and thus from their link to the rest of the animal kingdom. This most recent phase demonstrates the triumph of the cerebral, and it is probably not a coincidence that modern people feel closer to machines than to living creatures, and ruthlessly slaughter each other and animals.

Literature, too, has reflected changing human views of the animals' place in the scheme of things. The Bible assigned the animals the role of teacher, "But ask the beasts and they shall teach thee and the fowls of the air, and they shall tell thee" (Job 2:7-10). A Talmudic passage states that "if a man had not been taught the laws of propriety, he might have learned them from the animals."

In Greek mythology, Chiron, the centaur who had the legs and body of a horse and the head and brain of a human, ran a school in his cave at Mount Pelion. Chiron was reported to have been an excellent teacher, numbering among his students Achilles, Jason, and Asclepius (Candland, 1980). We know

that many preliterate peoples have learned how to take care of their sick and wounded by learning from the behavior of animals (Siegel, 1973)—for example, snake-bite treatments and the healing properties of mud and clay.

Myths and fairy tales express the basic world-view of a people, often through the behavior ascribed to animals. Ethical values, and the struggle between good and evil forces have frequently depicted in terms of animals, as in the modern literary myth, *Moby Dick* (Melville, 1952). Freud (1964, p. 9) has reminded us that "animals owe a good deal of their importance in myths and fairy tales to the openness with which they display their genitalia and their sexual functions to the inquisitive little human child."

Through a study of the art, religion, and literature (oral and written) of diverse ethnic groups and pastoral, hunting, tribal, or industrialized societies, we could attempt to determine how humans have tried to come to terms with themselves as "reasoning animals" and with what has happened to human social relationships, as well as human stewardship of natural resources, when animals have been elevated or denigrated in relation to humans.

Animals and human personality development

In our rapidly changing technological society, in which the small nuclear family functions as the "school" in which human relations, love, and empathy are taught, companion animals may play a more important role than they did when the extended family provided more companionship and learning experiences, and life, particularly in the rural areas, provided more opportunities for daily contact with the domestic animals that were crucial to the economic existence of the family (Levinson, 1972).

I believe that the personality development of an individual who has an animal companion or is surrounded by animals will be somewhat different from that of an individual who does not have daily contact with them (Levinson, 1978). The ownership of an animal companion may aid in the development of adaptive personality traits. Research should be able to determine whether, other things being equal, adult owners of animal companions show more empathy for fellow human beings than non-owners. What of those who did or did not have animal companions in their childhood? Are owners of animal companions more comfortable in their sex roles than non-owners? Do animal companions play different roles in the personality development of boys as opposed to girls? Is there a different incidence of mental illness—*e.g.*, severe depression and schizophrenia—among animal owners versus non-owners? Do owners who have experienced the death of an animal companion handle human bereavement more effectively than non-owners? Is there any difference in the way owners treat animal companions when they view the latter as either similar to or different from themselves in terms of personality traits?

Animal ownership may contribute to the establishment of a life-style that involves nurturing of and companionship with a living creature that can sustain a conviction of life's value even under difficult circumstances. It would be valuable, for example, to investigate the effect of animal companionship on people with terminal illnesses such as cancer. Is there a difference in survival rates between owners and non-owners of animal companions? What of those with chronic illnesses, such as diabetes, muscular dystrophy, arthritis, and cardiovascular diseases? Does animal companionship significantly reduce the stress of divorce and widowhood and help in the effective management of these situations?

When an animal companion is introduced into a family, the entire

climate of family interaction changes and becomes more complex, thus affecting the development of each individual member and the personality of the family as a unit. Children become "parents" to the animal; the animal becomes a "new child" to the parents. Research topics in this area might include the following: What influence, if any, does the animal companion in a family have on the incidence of divorce, desertion, child and spouse battering, and criminal actions by family members? Does the presence of an animal companion reduce parental stress? How are animals used as child substitutes? Why is the feeding of zoo animals so prevalent? Is this done more by animal owners than non-owners? Do family members do this more or less frequently than those who are single?

Human-animal communication

Humans and animals, as we all know, communicate with each other on an intuitive level. We observe humans talking to or petting their animal companions and the latter reciprocating by an appreciative bark or wagging of the tail. Dogs seem to know when their owners have decided to take them for a walk, running expectantly to the door before they have even stood up. We also know that zoo keepers understand quite a bit of the moods and behavior of the animals in their charge. Books have been written on the communications that horses try to make to their owners (*e.g.,* Ainslee and Ledbetter, 1980).

We know that animals can think (Griffin, 1981), although they may not think the way we do and do not follow human logic. They also use language. Again, the language is not the same as ours, although some chimps and gorillas have been taught to manipulate symbols that stand for words in our own language (Rumbaugh, 1977). Animals can communicate with each other just as we do (Sebeok, 1977), and as far as I can tell, that is what language is all about. Although it is difficult for most of us to accept, the idea that only humans can convey meaningful expressions has finally been destroyed, and we humans can no longer claim that language constitutes the greatest distinction between us and the animal kingdom (Schmeck, 1980).

Yet the idea that we can communicate with animal companions raises ambivalent feelings in most of us: we feel threatened now that our unique position as *primus inter pares* among primates has been challenged by "talking" chimps and gorillas. However, we are also fascinated by the possibility that, like King Solomon, we may be able to communicate with all species. Possibly, part of the fascination the animal companion has for us, its inscrutability (because of the inability to talk), will be lost. However, in beginning to communicate with animals we may be on the threshold of discovering the animal's point of view.

The research into communication between animal and human can be broken down into two overlapping categories: (1) verbal and (2) non-verbal.

As I see it, the important research areas for us to engage in are those that are related to nonverbal communication. Here I am adopting and somewhat expanding the scheme of Harper, *et al.* (1978, p. vii). Within these areas I would include (1) paralanguage and the temporal characteristics of speech, (2) facial expressions, (3) the kinesic behavior of body movements, (4) visual behavior, (5) proxemics, or the use of space and distance, (6) touch behavior, and (7) chemical sensitivity. We must also include empathy as a form of communication between animal and human, that is, the capacity of a person (or animal) to experience the needs and feelings of others as if they were his or her own. While, for the sake of study, we may segregate these elements into separate categories, we must remember that actual commu-

nication takes place simultaneously via many channels (Bowlby, 1980; Harlow, 1974; Katcher and Weir, 1977; Montagu, 1978).

The attempts to date to communicate with animal companions have been faulty. They have been limited to certain verbal instructions to our animal companions for the purpose of obedience training or skilled "acting" careers in the circus, TV, or movies. We suspect that dolphins and whales can communicate with each other through clicks and whistles, appearing to some human observers to be expressing in this way such feelings as anger, joy, or annoyance (Busnel and Fish, 1980; Lilly, 1978). However, we have failed to address ourselves to the meanings, *i.e.,* the adaptive functions, of the languages of our animal companions. We have tried to teach an animal companion *our* language, our way of communicating, rather than trying to learn his (Terrace, 1979). Also, the bodily states of emotion in animals should be carefully studied to provide clues to the best ways of communicating with animals (Peters, 1980).

We should also become aware of the fact that, in becoming domesticated, the animal companion loses some of its ability to engage in nonverbal communication with its own kind (Scott, 1980). This happens because a domesticated animal no longer needs to forage for itself or to communicate to a co-specific the location of food or the presence of danger.

Animal companions as co-therapists

When we use animal companions as co-therapists in our attempt to help people resolve emotional problems, we provide individuals with an opportunity to experience a variety of feelings that they may not have previously recognized in themselves. The animal permits the person to see himself or herself as small or big, as father, mother, or child, depending upon his or her specific needs at a particular point in his or her psychological development.

Perhaps this use of animal companions can help us solve the riddle of the way in which all types of therapy work. Many researchers talk about a common element, *i.e.,* the therapeutic factor, in various modes of therapy. Perhaps working with animals as co-therapists will help us isolate this common element. Perhaps animal co-therapists supply the mysterious something that is common to all effective therapies. I first mentioned this idea in an article in 1965 (Levinson, 1965, p. 698) when I asked: "Do we possibly have in pet therapy a tool which permits us to examine at great length and under magnification the elusive something which promotes emotional healing?"

In discussing animal companions as co-therapists, we must consider the radical change that has occurred in the way we construe therapeutic services in the last 20 years. We are abandoning the older medical model; we no longer think of a person who comes to us for help as a "patient," but rather as an individual like ourselves who has problems, as well as certain strengths and weaknesses.

When we use animals as co-therapists, patients or clients need not feel that they are mentally ill. Instead, they can consider themselves as showing some type of social maladjustment or incompetence, and we can help them recognize that they can do quite a bit to help themselves. The model of learned helplessness need not apply after all (Abramson *et al.,* 1978).

We no longer think that one must be a professional psychotherapist to be able to help. Anyone can help. We now emphasize that paraprofessionals, peer groups, and self-help groups all have much to contribute. The use of animal companions also encourages mutual social support and thereby induces quicker social and emotional adjustment. We can therefore see how the pet therapy

movement fits in well with this current trend.

The use of an animal companion as a friend is very helpful to a person who is trying to establish competency in coping with his or her life. Relating to an animal in no way denigrates clients or makes them feel helpless or dependent, as they might if all their attention were focused on a human therapist. Instead, they find their own source of good health within themselves, in the course of their evolving association with the animal companion. One factor that I believe has completely escaped research investigation so far is the fact that the individual who is treated with the help of an animal co-therapist may develop an entirely different concept of self than the one who is treated without one.

Increased independence can also be the goal of using animal companions to assist those who have spent much time in congregate living quarters — such as institutions, nursing homes, prisons — and are trying to learn to live on their own. These might include aged, partly sighted, deaf, alcoholic, physically handicapped and mentally retarded clients.

Animals can be taught to act as "trained" nurses by learning to react to any unusual behavior on the part of their charges, such as a change in the rhythm of breathing, unusual perspiration, heart palpitation or excessive fever. With chronically ill bed-ridden patients, they can act as 24-hour nurses' aides.

Animal companions can also facilitate the independence of institution-bound people, by providing them with a living creature as a focus for concern and care; in addition, they can draw upon the animal's strength and intelligence and thereby compensate for their own deficits.

Possible Areas for Future Investigation

There are an almost limitless number of research topics related to companion animals, whether in formal psychotherapy or as a therapeutic element in the daily environment.

The first broad area for investigation involves amassing data about the animals themselves. We must establish criteria for the selection and breeding of animals that are suitable for work with children, the aged, the retarded, and the physically and emotionally handicapped. Animals used as co-therapists in an office setting may have to have different characteristics from those used in prisons, nursing homes, hospices for the dying or schools for the mentally retarded. We might experiment with the use of a wide variety of animals, exploring the best kinds of contributions that each might make to therapeutic work.

Another area for investigation involves the human therapist-animal co-therapist relationship. What, for example, are the differences in personality between those therapists who can effectively use animals and those who cannot or do not wish to? How does the use of an animal affect the therapist's attitude toward his or her patient? How does a patient's relationship with the animal affect the therapist's self-image and sense of competence? Is the animal viewed as a rival by the human therapist?

Animal companions have proven particularly useful in psychotherapy with children. Here, there are many questions that have come to light. For example: What problems best lend themselves to resolution through the aid of a companion animal in play therapy? How do the personalities of child, therapist, and animal interact? How does the animal help the child achieve insight or increased maturity? How can the presence of a companion animal at home augment or even substitute for the activity of a therapist? How does the child identify with the animal? How does the therapist make use of the child's nonverbal behavior with the animal? What is the dif-

ference between children who can and cannot use animals in their treatment? Is the relationship between the animal and the child similar to the one between the animal and the therapist? What limits should be set on the child in relation to the animal, and how does this affect the treatment? When is the use of an animal co-therapist inadvisable?

Finally, we may explore the fundamental nature of therapy itself, especially in the instance of those therapists who decide to use animals with some patients and not with others. Which elements that the animal introduces into the situation are therapeutic and, in some cases, which are not? What kinds of impressions is a therapist who uses an animal co-therapist conveying to his or her patients by this action? Do animals make more of a contribution at some stages of therapy than at others? Are there phases of therapy during which the presence of an animal would actually detract from the therapeutic work?

There are many other interesting research problems. For instance, How does companion animal therapy compare with other current therapies in terms of the development and strengthening of the patient's ego? Does the use of an animal promote better integration and more autonomy? Do transference and countertransference differ in companion animal-treated cases as opposed to those cases that are treated by more conventional psychotherapeutic approaches? Research is also needed to discover what kind of animal companion would be most helpful to people with specific types of problems.

Conclusion

I would like to suggest that this new science take a close look at the relationships that are currently developing between humans and animals. Some of us no longer look upon animals as either domestic or savage, or noble or base but rather, choose to consider them as our partners on earth. Most of us are aware that our humanity depends in part on how we relate to animals and to nature as a whole. Most of us also are aware that an ambivalent relationship — really an undeclared war — has existed between human and animal since ancient days. At first, we saw animals as gods, then as slaves, and then as workers; now we are finally beginning to look at them as companions. Yet we have always dreamed of the mythical Golden Age when animals and humans lived at peace with each other.

Like all myths, this one described an idyllic world that never existed but that expressed the deep longing within human beings to be at peace with others and with themselves. Now, I believe that we are finally moving closer to the vision of the Golden Age. With the gradual disappearance of wild animal life, peaceful coexistence betwen humans and animals is becoming a reality in zoos and in protected wildlife sanctuaries. It is now our task to work toward fulfilling the vision of the Prophet Isaiah that "the wolf shall dwell with the lamb, and the leopard shall lie down with the kid" (Isaiah 11:6).

References

Abramson, L.Y., Seligman, M.E.P., and Teasdale, J.D. (1978) Learned helplessness in humans: critique and reformulation. *J Abnor Psychol 87*:49-74.

Ainslee, T. and Ledbetter, B. (1980) *The Body Language of Horses.* Morrow, New York, NY.

Allen, R.D., Westbrook, W.H., Cartier, M., Burnette, P., and Hoag, T. (1979) Attitude and personality surveys, In: Allen, R.D. and Westbrook, W.H., eds., *The Handbook of Animal Welfare: Biomedical, Psychological and Ecological Aspects of Pet Problems and Control.* Garland STPM Press, New York, NY, pp. 129-147.

Anonymous (1976) *Pets as a Social Phenomenon: A Study of Man-Pet Interactions in Urban Communities.* Petcare

Information and Advisory Service, Melbourne, Australia.

Barlow, G.W. and Silverberg, J. eds. (1980) *Sociobiology: Beyond Nature-Nurture,* AAAS Selected Symposium No. 35. Westview, Boulder, CO.

Barnett, S.A. (1981) *Modern Ethology: The Science of Animal Behavior.* Oxford Univerity Press, New York, NY.

Baum, A. and Singer, J.E., eds. (1980) *Advances in Environmental Psychology,* Vol. 2, *Applications of Personal Control.* Erlbaum, Hillsdale, NJ.

Berkowitz, L. *A Survey of Social Psychology,* 2nd ed. (1980). Holt, Rinehart and Winston. New York. NY.

Bowlby, J. (1980) *Loss: Sadness and Depression,* Vol. 3, *Attachment and Loss.* Basic Books, New York, NY.

Brickel, C.M. (1980-1981) A review of the roles of pet animals in psychotherapy and with the elderly. *Int J Aging Hum Devel 12*(2):119-128.

Bronfbrenner, U. (1979) *The Ecology of Human Development: Experiments by Nature and Design.* Harvard University Press, Cambridge, MA.

Brown, L.T., Shaw, T.G. and Kirkland, K. D. (1972) Affection for people as a function of affection for dogs. *Psych Rep 31*:957-958.

Busnel, R.G. and Fish, J.F., eds. (1980) *Animal Sonar Systems.* Plenum Press, New York, NY.

Bustad, L.K. (1980) *Animals, Aging and the Aged.* University of Minnesota Press, Minneapolis, MN.

Candland, D.K. Speaking words and doing deeds. (1980) *Am Psychol 35*:191-198.

Clark, K. (1977) *Animals and Men.* Morrow, New York, NY.

Corson, S.A., O'Leary-Corson, E., and Gwynne, P.H. (1975) Pet-facilitated psychotherapy, In: Anderson, R.S., ed., *Pet Animals and Society.* Baillière Tindall, London, pp. 19-36.

Corson, S.A. and O'Leary-Corson, E. eds. (1980) *Ethology and Nonverbal Communication in Mental Health.* Pergamon Press, Oxford, U.K.

Denny, M.R., ed. (1980) *Comparative Psychology: An Evolutionary Analysis of Animal Behavior.* Wiley, New York, NY.

Dewsbury, D.A. (1978) *Comparative Animal Behavior.* McGraw-Hill, New York, NY.

Fogle, B., ed. (1981) *Interrelations Between People and Pets.* Charles C Thomas, Springfield, IL.

Fox, M.W. (1974) *Concepts in Ethology.* University of Minnesota Press, Minneapolis, MN.

Freud, S. (1964) Analysis of a phobia in a five-year-old child, In: Strachey, J., ed. and trans., *Collected Works,* Standard Edition, vol. 10. Hogarth Press, London, pp. 3-152.

Giedion, S. (1962) *The Eternal Present.* Pantheon Books, New York, NY.

Goldstein, J.H. (1980) *Social Psychology.* Academic Press, New York, NY.

Griffin, D.R. (1981) *The Question of Animal Awareness,* 2nd ed. Rockfeller University Press, New York, NY.

Guttmann, G. (1981) The psychological determinants of keeping pets, In: Fogle, B. ed., *Interrelations Between People and Pets.* Charles C. Thomas, Springfield, IL, pp. 89-98.

Harlow, H.F. (1974) *Learning to Love.* Aronson, New York, NY.

Harper, R.G., Wiens, A.N., and Matarazzo, J.D. (1978) *Nonverbal Communication.* Wiley, New York, NY.

Jensen, A.E. (1963) *Myth and Cult Among Primitive Peoples.* University of Chicago Press, Chicago, IL.

Katcher, A.H. and Weir, L. (1977) Human contact and cardiac arrhythmia in a coronary care unit. *Psychosom Med 39*(3): 188-192.

Kidd, A.H. and Feldman, B.M. (1981) Pet ownership and self-perception of older people. *Psychol Rep 48*:867-875.

Leach, M. (1961) *God Had a Dog.* Rutgers University Press, New Brunswick, NJ.

Levinson, B.M. (1962) The dog as a "co-therapist," paper presented at the An-

nual Meeting of the American Psychological Association, New York, August 1961. *Ment Hyg 46*:59-65.

Levinson, B.M. (1965) Pet psychotherapy: use of household pets in the treatment of behavior disorders in childhood. *Psychol Rep 17*:695-698.

Levinson, B.M. (1969) *Pet-Oriented Child Psychotherapy.* Charles C Thomas, Springfield, IL.

Levinson, B.M. (1972) *Pets and Human Development.* Charles C. Thomas, Springfield, IL.

Levinson, B.M. (1978) Pets and personality development. *Psychol Rep 42*:1031-1038.

Lilly, J.G. (1978) *Communication Between Man and Dolphin.* Crown Publishers, New York, NY.

McGuigan, F.J. (1981) Obituary: W. Horsley Gantt (1892-1980). *Am Psychol 36*: 417-419.

Melville, H. (1952) *Moby Dick.* Hendricks House, New York, NY.

Montagu, A. (1978) *Touching,* 2nd ed. Harper and Row, New York, NY.

Mugford, R.A. and M'Comisky, J.G. (1975) Some recent work on the psychotherapeutic value of cage birds with old people, In: Anderson, R.S., ed., *Pet Animals and Society.* Baillière Tindall, London, U.K., pp. 54-65.

Peters, R. (1980) *Mammalian Communication: A Behavioral Analysis of Meaning.* Brooks, Cole, Monterey, CA.

Rumbaugh, D.M., ed. (1977) *Language Learning in a Chimpanzee: The Lana Project.* Academic Press, New York, NY.

Schmeck, H.M., Jr. (1980) Survey in Africa finds monkeys using "rudimentary" language. *New York Times,* November 28, 1980, pp. 1A, 22A.

Scott, J.P. (1980) Nonverbal communication in the process of social attachment, In: Corson, S.A., *et al.,* eds., *Ethology and Nonverbal Communication in Mental Health.* Pergamon Press, New York, NY, pp. 135-141.

Sebeok, T.A., ed. (1977) *How Animals Communicate.* Indiana University Press, Bloomington, IN.

Siegel, R.K. (1973) An ethologic search for self-administration of hallucinogens. *Int J Addict 8*:373-393.

Siegel, R.K. (1977) Normal hallucinations of imaginary companions. *McLean Hosp J 2*(2):66-80.

Stokols, D. (1978) Environmental psychology. *Ann Rev Psychol 29*:253-295.

Terrace, H.S. (1979) *Nim: A Chimpanzee Who Learned Sign Language.* Knopf, New York, NY.

Tylor, E.B. (1958) *Religion in Primitive Culture.* Harper and Brothers, New York, NY.

Wilbur, R.H. (1976) Pets, pet ownership and animal control, In: *Proceedings of the National Conference on Dog and Cat Control.* American Humane Association, Denver, CO, pp. 21-34.

Wilson, E.O. (1975) *Sociobiology.* Harvard University Press, Cambridge, MA.

Wilson, E.O. (1980) *Sociobiology,* abridged ed. Harvard University Press, Cambridge, MA.