Human-Animal Relationship Under Scrutiny

Veterinarians, psychologists, and others believe time is ripe for a new interdisciplinary field

Spot, Puff, and Trigger are no longer pets; they are "animal companions," who may make life happier and healthier for their human friends. That, at least, is one of the major premises that form the basis for a new interdisciplinary endeavor, the study of relationships between animals and people.

The University of Pennsylvania's 4-year-old Center for the Interaction of Animals and Society was host this month to the first international conference on the "human/companion animal bond." It was probably one of the few occasions at which pet food manufacturers and psychiatrists found themselves mingling. Many veterinarians were in attendance, as well as humane society officials, social workers, psychologists, philosophers, ethologists, and pet store owners. The master of ceremonies was Alan Beck, head of the university center and an animal ecologist who is author of *The Ecology of Stray Dogs*.

Animals, and how people feel toward them, were taken very seriously at this conference. The assembled experts emphasized that the field is so new that it is not clear yet just what questions should be pursued or what research methodologies will prove fruitful. Scientific findings that would appear to justify the establishment of a new discipline are sparse, consisting basically of two separate studies that suggest that elderly or infirm people get along better if they have pets than if they don't. One compelling justification for pursuing research in this area is statistical: by 2000, 50 million Americans will be over 65. Isolation and loneliness are prominent among the problems of old age, and pets are a cost-effective way to supply old people with emotional sustenance and a feeling of being needed.

What was referred to as a pioneering study in the field was conducted in 1974 by Roger Mugford, a British consultant on animal behavior problems. In a small town in Yorkshire he selected a group of 48 old people—average age 73—who lived alone. Half the group were given begonias to care for, and half were given budgerigars (a chatty variety of parakeet very popular in England). Both groups were assessed by social workers every 6 months on various factors having to do with personality and social adjustment. At the end of 3 years it was found that the "budgie" owners were distinctly better off emotionally than the begonia owners. They had more friends, more visitors, and generally more links with their community. Mugford also says there were fewer deaths among the budgie owners, a finding that was "not statistically significant, but suggestive."

Another oft-cited study, conducted at the University of Pennsylvania by psychiatrist Aaron Katcher and two colleagues, was initiated in 1977 for the purpose of identifying social factors that affect the well-being of coronary patients. The original hypothesis had nothing to do with animals, although the investigators did ask questions about pets. To their surprise, they found that pet ownership among the 93 subjects was the strongest social predictor of survival, stronger even than human relationships. Katcher says they surmised that dogs, since they require walking, kept people more active, but the effect also pertained for owners of cats, fish, and an iguana. A little more than half the group had animals; after 1 year a third of the non-pet owners had died while only 3 animal owners succumbed.

Katcher, one of the main figures at the conference, says this was the study that triggered his interest in the animal-human bond. He and his colleagues, including James Lynch, psychiatrist at the University of Maryland, and Erika Friedmann of the University of Pennsylvania, went on to observe that pets may also have a positive effect on blood pressure. They found that a person's blood pressure goes down or stays the same when he talks to an animal, whereas it invariably rises during conversation with other people. They found that just the presence of a dog in the room could lower blood pressure, and that gazing at a tankful of tropical fish also lowers it, very like meditation.

So far, most of the research is observational. One graduate student, for example, spends days at a time with families to observe their interactions with their dogs. Another watched 42 people on 100 dog walks and found that dogs acted as a "social lubricant." Another researcher videotapes interactions of elderly people and animals brought into nursing homes. Examination of the tapes generally reveals subtle positive changes in patients, who develop better eye contact with people, become more alert, responsive, open, and inquisitive. Investigators are also trying to quantify other aspects of the relationship between people and pets such as the motivation for having pets, the emotional role the animal plays for its owner, and so forth. Bereavement over a lost pet is a big subject of interest. There is no overestimating the importance of pets to people, it seems. Katcher reported that in one questionnaire, on which people were given the opportunity to indicate whether they thought their pet was an animal or human member of the family, 48 percent responded that the animal was a human family member.

One of the more interesting attempts at a laboratory study was done by Randall Lockwood, a psychologist at State University of New York at Stony Brook.

Barbara J. Culliton

Irish Setter

Does a pet contribute to mental and physical health?

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Using a test where subjects are shown pictures and asked to make up a story about each, he showed subjects pairs of pictures of people that were identical except for the presence or absence of an animal. To the subjects, the relationships between people portrayed generally appeared more positive when an animal was in the picture, and more positive characteristics such as intelligence, industriousness, and happiness, were ascribed to the people.

Another angle that draws attention of researchers is how animals yield clues to problems of their owners.

A researcher from Britain reported that cases of animal abuse may be used as an alert to family pathology. Interviews with families who were known to the Royal Society for the Prevention of Cruelty to Animals revealed many broken families and persons prone to violence and child abuse.

Although the field of animal-human relationships embraces matters ranging from ethics to "pooper scooper" laws, the chief application is in the therapeutic use of animals. One of the earliest pet-facilitated therapy projects was started in 1975 at the Lima, Ohio, State Hospital where a variety of animals, including macaws and gerbils, have reportedly led to improved morale and interaction among the patients. Although institutional regulations make it difficult to get animals together with institutionalized populations, the people at the meeting saw a big future for animals in nursing homes, hospitals, prisons, psychiatric wards, and schools where there are retarded, autistic, or handicapped children.

A French veterinarian, Ange Condoret, is planning to establish a children's center for animal-human communication. He believes animals can supply the bridge for autistic children eventually to establish contacts with other humans. He also says that childhood problems such as bed-wetting and nightmares can be alleviated by allowing a child to choose a pet.

Animals are also being used in psychotherapy. Boris M. Levinson, emeritus professor of psychology at Yeshiva University, said he met with a lukewarm reception when he reported on his use of a dog as co-therapist 20 years ago. "Until comparatively recently academicians have viewed interest in animal-human relationships as a childish preoccupation," he said. Now people are talking about doing systematic research on just what kinds of animals are best suited to the needs of particular populations. One speaker said he looked forward to the day when one could "prescribe a pet just

Reagan's Plan for Nuclear Power

With a minimum of fanfare, President Reagan and Energy Secretary James Edwards held a briefing at the White House on 8 October to set out their goals for rehabilitating the nuclear power industry. The statement, which held few surprises, described the federal commitment in general terms and gave no specific information about the legislation that will be necessary to achieve the new objectives.

The Administration's broad purpose, according to the President, is to create a stable and supportive federal policy to make it easier for utilities to raise capital for nuclear projects. The assumptions are that a growing economy must have electrical power, and that power can be supplied most efficiently by coal-fired and nuclear generators.

The three basic goals of the plan, according to the President, are (i) to accelerate the licensing of nuclear plants which have already been proposed, increasing the number of licensees by 50 percent in 30 months, (ii) to provide federal financing for research and development on the equipment required to sustain a system of breeder reactors, and (iii) to start operating a federal disposal site for highly radioactive nuclear wastes.

The most controversial item in the package is the decision to reverse the Carter Administration's ban on private reprocessing of used reactor fuel. Carter ordered the ban in 1977, closing the only functioning private plant in Barnwell, South Carolina. The decision was based on foreign policy. In order to prevent the spread of nuclear weapons technology, the Carter Administration sought an international moratorium on fuel reprocessing. As a gesture of good faith in negotiating the moratorium, the United States sacrificed its own reprocessing industry.

The Reagan Administration is repealing this policy essentially for domestic reasons. Reagan said he would like to create a private fuel-handling industry to help dispose of nuclear wastes. This would simplify the federal government's waste disposal problems. Asked about the impact this change would have on nonproliferation agreements, White House officials simply replied that the decision was a domestic, not a global, matter.

The President said that commercial reprocessing plants would be useful not only in disposing of wastes but also as a source of plutonium for the breeder reactor. Although this President does not approve of federal subsidies in general, one Administration official said the government may promise to buy a certain amount of plutonium from private reprocessing centers to help get them launched. It is not clear under this plan whether the government would buy plutonium just for breeders or for bombs as well. This is one of many controversial details the Administration will have to discuss in coming months.

Reagan's new program does not call for additional federal funding in the next year. (Congress has already debated and agreed to fund the breeder program.) However, the plan will eventually require additional legislation in at least two areas: plant licensing and waste disposal.

The Nuclear Regulatory Commission may make itself somewhat more efficient by administrative fiat. But to achieve the long-term objective of reducing licensing time from 14 to 8 years, the Administration will have to propose new laws. Nothing is on the drawing board at the moment.

The briefing paper also notes that, "The government accepts full responsibility for permanent isolation of high-level radioactive wastes." And it promises that the Administration will choose three permanent disposal sites and construct exploratory shafts by 1985. By 1988, according to this forecast, a federal disposal center should be ready for licensing. All of this will require new legislation, but as of now the Administration does not know what form it will take.

The House, still controlled by Democrats, is likely to be far less enthusiastic about this program than the Senate. At least one key representative has declared his strong opposition. This is why the parts of the program requiring new law will be slow to take shape.

—ELIOT MARSHALL

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as you would prescribe high blood pressure medication."

The use of animals as helpers also appears to have a burgeoning future. The American Humane Association recently started a program to training "hearing-ear dogs" for deaf people; the dogs alert them to telephones, fire alarms, and other meaningful noises. Dogs are being trained to perform chores for wheelchair-bound people and specialized tasks for people with particular disabilities. There is also talk of training dogs as "night nurses," to be alert to signs indicating a change in a patient's condition.

Although many people intuitively believe that close bonds with animals will prove to have measurable effects on people's health and happiness, long-term large-scale studies will be required. One such study is being conducted by epidemiologists Marcia G. Ory, at the National Institute on Aging, and Evelyn Goldberg of Johns Hopkins University. Theirs is a 5-year study on the health consequences of bereavement covering 1000 married women, aged 65 to 75. In assessing the well-being of the subjects, pet owning did not emerge as a significant factor. However, the researchers did find that women who felt close attachments to their pets were also more likely to have close relationships with their husbands. Ory suggests that as spouses die, valuable information about the role of pets may emerge. "This is a wonderful study, but morbid as hell," she notes.

By the end of the conference, Beck appeared excited about the prospect that the study of animal-human relationships (no official name for it has been agreed on) is becoming established as a legitimate field. He noted that the University of Minnesota has just followed Pennsylvania's lead in setting up a Center to Study Human-Animal Relationship and Environments, cosponsored by the schools of public health and veterinary medicine. Pennsylvania has also established a membership group, the Delta Society, which eventually hopes to publish its own journal.

—CONSTANCE HOLDEN

No Boost in Sight for Science Budgets

Keyworth says economic recovery is the President's first priority

Two Administration officials said recently that scientists supported by the government will continue to face tight budgets as part of President Reagan's economic recovery program. This fiscal austerity is spurring the government to reevaluate priorities in scientific research, according to the President's science adviser, George Keyworth, and Health and Human Services assistant secretary of health, Edward Brandt, Jr.

Although every government science agency is confronted with the 12 percent cut that Reagan announced recently, across-the-board reductions would be "irresponsible," Keyworth stated at a recent meeting of the NIH director's advisory committee.

Keyworth said, "The President recognizes the importance of science and technology, but economic recovery is his first priority." Neither he nor Brandt spelled out any new areas where future budget reductions might be made.

Keyworth presented a few examples of the Administration's concerns in science. He went out of his way to deplore the state of scientific instruments used for teaching in universities in the United States. "I will say it bluntly. The status of [such] instrumentation is disgraceful," he declared. It is in "crisis condition."

The Administration is trying to alleviate the problem through changes in tax law. One reform gives tax credit to businesses for donating instruments to universities. But an NIH committee member took the Administration to task for contradictions in the federal reforms. New York University medical school dean Ivan Bennett pointed out that the tax policy also permits companies to depreciate instruments more rapidly than before. Bennett said this reduces industry's incentive to contribute instruments to schools.

Marjorie Sun

Keyworth at NIH

Since Reagan announced his plan to cut the budget even more, Keyworth said he is devoting most of his attention to the broader issue of ironing out the total science budget for the next fiscal year. He emphasized that the federal government has "primary responsibility for basic research" and that industry's main role is to support applied research. In answer to a question about the elimination of the Department of Energy (DOE), Keyworth said he was unsure what would happen to research conducted by DOE scientists. In areas of research where federal support is inadequate, industry may pick up the slack, he said. Keyworth hailed recent collaborative agreements reached between several universities and corporations in biotechnology research as a "momentous step and a critical element to strengthen scientific research."

He also mentioned that the Administration is reexamining the controversial time and effort accounting rules set up under the Office of Management and Budget Circular A-21, that government-supported researchers have complained about (*Science*, 15 May, p. 760). Although he acknowledges the need for modification, Keyworth, a former research physicist, appears not to be as troubled over the requirements. "A-21 is not such a terrible ugly piece of legislation. It's more that it was the straw that broke the camel's back." Denis Prager, an associate director in Keyworth's office, said later that the Administration is considering the adoption of a different accounting philosophy that would assess scientists' "performance levels" rather than a log of their time spent in research. This approach would examine whether scientists have accomplished the goals of their research. An official of the Associa-

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