THE PARADIGM SHIFT TOWARD ANIMAL HAPPINESS

Jerrold Tannenbaum

This essay discusses what I believe to be the most dangerous contemporary threat to the use of animals in medical research. This threat is not, as many supporters of animal research assume, the growth of the contemporary animal rights movement and the aim of this movement to terminate all use of animals in experimentation and testing. Calls for the end of animal use tend to come from people who dispute, on empirical grounds, the relevance of using animals in developing medical treatments, or from those who openly reject fundamental ethical values that are reflected in animal research. Among these values is the view that animals are not as valuable as human beings and that it is therefore sometimes appropriate to use them in research that benefits humans. Such criticisms of animal research are easy to recognize, and they tend to elicit vigorous responses from the medical community.

Far more dangerous is a relatively new approach to animals that is espoused, with increasing frequency and fervor, within the research community itself. This view asserts that animals used in research are entitled not just to freedom from unnecessary or unjustifiable pain or distress, but to well-being, pleasure, and even happy lives. This approach is dangerous precisely because its endorsement by people who are committed to using animals obscures the fact that it threatens animal research.

Traditional Approach to Animal Welfare

For at least the past century, the great majority of people in Western societies have adhered (at least in principle) to a general ethical position regarding the treatment of animals that we humans use or with which we interact. This general view, which I shall call the *traditional approach* to animal welfare, focuses on unpleasant mental states in animals, such as pain, suffering, stress, distress, and discomfort. (Because the term "pain" is often used in the animal-ethics literature to refer to any or all of these mental states, I shall use that term here, but within single quotation marks to indicate this broad sense.) The traditional approach asserts that many animals that humans use or interact with are capable of experiencing 'pain', and that the experience of 'pain' is a harm or evil to animals just as the experiencing of these states is a harm or evil to humans. According to the traditional approach, because it is always desirable not to cause an evil that one need not cause, the ideal, when we use animals for our own purposes, is to avoid causing them 'pain'. However, the traditional approach also asserts that many uses of animals are ethically acceptable, and that some of these uses may sometimes cause animals 'pain'. Thus, an important tenet of the traditional approach is that although we should always try to avoid inflicting 'pain' on animals, when we use them in legitimate ways that may cause them 'pain', we are obligated not to cause them *unnecessary* or *unjustifiable* 'pain'.

In prohibiting the infliction of "unnecessary" animal 'pain', the traditional approach employs a weak (and some have suggested an inappropriate) sense of "necessity." Strictly speaking, it is rarely if ever necessary to cause animals 'pain': in most cases, we could stop using them in ways that cause 'pain'. In regarding certain animal 'pain' as necessary, the traditional position regards certain uses of animals as ethically *appropriate,* but insists that no more 'pain' should be inflicted on the animals than is required for these uses. For

example, if raising and slaughtering cows to produce beef (which most adherents of the traditional view believe is ethically acceptable) does cause cows some 'pain', such 'pain' is not, strictly speaking, necessary. We could stop raising cows for beef, however much difficulty, discomfort, or displeasure this may cause for people who want to eat beef. Nevertheless, most adherents of the traditional approach countenance as necessary some animal 'pain' that occurs when we use cows to produce beef. They do so because they believe that using the animals for this purpose is ethically acceptable and that some 'pain' may be inevitable in the context of this use. Likewise, research that causes animal 'pain' is not, strictly speaking, necessary, because we *could* cease using animals in research, even if terminating animal research would cause widespread human suffering. The traditional approach accepts some animal 'pain' as necessary in research because it accepts the appropriateness of some research that causes some animal 'pain'.

Although the traditional approach focuses on animal 'pain' and seeks to avoid or minimize it, the approach is not utilitarian. Utilitarian ethical theories claim that the rightness of actions derives solely from their *utility,* that is, their contributions toward intrinsically good states of affairs such as pleasure, happiness, or the satisfaction of preferences. A utilitarian justification of an animal experiment (or of animal experimentation generally) would argue that any animal 'pain' it causes is outweighed by its benefits to humans or to other animals. A utilitarian will claim that an animal use that causes 'pain' to animals is acceptable only if that use, when compared to alternative uses of animals, minimizes the total amount of 'pain' felt by all beings capable of feeling such sensations. For example, from a utilitarian perspective, a proposed animal experiment would be wrong if there were another approach to the relevant research—an alternative experiment, or a procedure avoiding animal use—that would cause less total 'pain' than would the proposed experiment.

In contrast to a utilitarian approach, the traditional approach does not make the appropriateness of animal uses turn on whether, on balance, the total 'pain' experienced by all beings affected is minimized. Instead, the traditional approach holds that a number of animal uses are legitimate, and may employ as a justification for this legitimacy a range of different ethical or religious principles. For example, adherents of the traditional approach need not justify the use of animals for meat on the ground that people who eat meat experience, on balance, total satisfactions that outweigh all the 'pain' caused to the animals used in meat production. An adherent of the traditional approach might justify raising cows for meat on any of various grounds: that eating meat is natural for the human species, that it brings great pleasure to humans, that God decreed that certain animals may be eaten by people, or that there is simply nothing wrong with raising and killing certain animals for food.

Although the traditional approach is not utilitarian, it generally engages in a balancing or weighing of what is done to animals, on the one hand, against the purported results of these uses, on the other. In the United States, the federal Animal Welfare Act (AWA) and the Health Research Extension Act of 1985 (HREA) require that institutions create Institutional Animal Care and Use Committees (IACUCs), which must approve all of the experimentation and testing on animals covered under these lows. (The laws of other countries require similar committees.) IACUCs typically ask whether an animal experiment that will cause animals pain or distress is justified by the aims and likely results of the experiment. This balancing or weighing is sometimes phrased in terms of comparing the "costs" to the animals against the "benefits" to people or animals. The traditional approach does not preclude employing a strict utilitarian argument to justify some uses of animals. Nevertheless, the traditional approach is not in and of itself utilitarian, because what counts as justified animal 'pain' under the traditional approach often does not turn on calculations of utility.

Another important feature of the traditional approach is that its adherents do not believe that it is in and of itself wrong to kill an animal, or that animals have a moral right not to be killed by humans. This follows from the fundamental tenet of the approach, that our overriding ethical obligation to animals is to avoid causing them unjustifiable 'pain'. However, the traditional approach does not treat all animal killings that do not cause 'pain' as perforce acceptable. Adherents of the traditional approach presumably would not approve of an "experiment" in which animals are killed without 'pain' and then thrown against a brick wall to determine the decibel level of sound caused when various sizes and species of animals

hit the wall. Such an activity would doubtless be regarded as unjustified, because even though the experiment causes no animal 'pain', it lacks any redeeming value.

Decline of the Traditional Approach

For well over a decade, I have presented the following case to groups of medical researchers, veterinarians, veterinary students, and IACUC administrators and members.

A researcher uses radioactive tracer chemicals to study the anatomical structure of the brains of rhesus monkeys. After the chemicals are injected intravenously, the animals are killed painlessly. The brain tissue is then removed for study. At no time do the monkeys experience any pain, distress, or discomfort other than the minimal amount associated with the injections.

Does this experiment have a negative impact on the monkeys' welfare? (For the purposes of this discussion, do not consider how the animals have been housed, cared for, or treated prior to being killed.) Would your response to this question be different if the animals in the experiments were mice?

When I began presenting this case, the overwhelming majority of people in my audiences responded to it in a manner reflecting the traditional approach. They agreed that whether the monkeys ought to be used in such a study is a legitimate question, but most felt that because the animals do not experience 'pain' in the process of being killed, their being killed does not raise a question of animal welfare.

When I present this case today, the first question evokes—in all the kinds of audiences to which I present it—immediate and substantial laughter. When I ask why people are laughing, I am told that it is *obvious* that the monkeys' welfare is affected—negatively—because they are *killed.* Moreover, the majority of respondents want to know precisely what kinds of direct medical benefits the study will generate, or at least what kinds of knowledge it might generate that could eventually be of clear practical benefit. When I ask whether they would require the same level of justification if this study were done on rats and mice, the vast majority say they would not, but almost all of these people insist that even the killing of mice or rats affects these animals' welfare—again, because they are killed. When I ask whether anyone adheres to the view that the monkeys' welfare is not affected because they are killed painlessly, a few people timidly raise their hands. The general reaction from audiences is that while it is important to spare animals avoidable or unjustifiable 'pain', laws and regulations should be amended to reflect the idea that painless killing of some species is problematic, and always constitutes a negation of welfare.

Yet this is not the end of the matter. Virtually everyone who responds to my case by saying that the painless killing of the monkeys would negatively affect the monkeys' welfare goes on to say that the reason death affects welfare is that death precludes additional experiences that living enables. If one asks why precluding future experiences affects welfare, one invariably hears that killing an animal prevents it from having positive experiences. Very few people say that keeping an animal alive is important because it perpetuates the animal's ability to be free from avoidable or unjustified pain, distress, or discomfort. In other words, behind the notion that animal welfare is negated by death is the view that animal welfare includes *enjoyable* experiences.

Beyond Freedom from 'Pain' to Pleasures

Even a cursory look at the animal research literature indicates that my contemporary respondents are by no means unique. One finds the following positions expressed repeatedly which collectively I shall call *the emerging approach to animal welfare*:

1. Although we are obligated to avoid causing animals used in research and for other purposes no more 'pain' than is necessary or justifiable, this is not our only obligation.
2. Many animals have a significant interest in positive and enjoyable experiences, such as feelings of satisfaction in activities including eating, socializing with members of the same species (where this is characteristic of a species's behavior), and sexual behavior.
3. Certain positive experiences that animals can undergo constitute part of their welfare.
4. Therefore, killing animals, even painlessly, harms these animals because it prevents them from having these experiences.
5. Therefore, killing animals harms their welfare.

6. We are obligated to protect and assure the welfare of animals that we use in research and for other purposes.

7. Therefore, we are obligated to provide animals that we use in research not just freedom from avoidable or unjustifiable pain; we must also provide them with pleasurable and satisfying experiences.

A striking and important expression of the emerging approach is found in the *Guide for the Care and Use of Laboratory Animals;* as noted above, research institutions that receive federal funds for animal research must consult the *Guide.* The first paragraph of the *Guide* states that: "This edition of the *Guide for the Care and Use of Laboratory Animals* (the *Guide*) strongly affirms the conviction that all who care for animals in research, teaching, or testing must assume responsibility for their well-being.... Decisions associated with the need to use animals are not within the purview of the *Guide*, but responsibility for animal well-being begins for the investigator with that decision.... The goal of this *Guide* is to promote the humane care of animals used in biomedical and behavioral research, teaching, and testing; the basic objective is to provide information that will enhance animal well-being, the quality of biomedical research, and the advancement of biologic knowledge that is relevant to humans or animals."

The term "welfare" does not appear in this statement. Indeed, the term does not appear in the *Guide.* The term "well-being," which implies positive satisfactions and enjoyments, has replaced "welfare," which was not interpreted as including such things when the traditional approach to animal welfare held sway.

Saying that we must afford research animals "well-being" appears to imply that we must afford them some—perhaps a great deal of—satisfactions, enjoyments, and pleasures. According to philosopher Bernard Rollin, current demands for environmental enrichment and well-being are just preliminary steps to societal attitudes and laws requiring that all animals kept and used for human purposes shall be provided happiness and, as Rollin puts it, "*happy lives*": "In the 1985 Amendments [to the Animal Welfare Act] society mandated exercise for dogs and environments for nonhuman primates which "enhance their psychological well-being." These demands presage, I believe, moral requirements which society will very shortly extend to all animals kept in confinement for human benefit, be they animals used in agriculture, zoos, or research facilities. The research community must anticipate these demands and begin to seek animal-friendly housing, care, and husbandry systems that allow the animals to live happy lives while being employed for human benefit."

Calls by scientists and IACUCs for "happy lives" for research animals are not yet commonplace. However, it is important to appreciate how quickly the view that research-animal welfare includes some positive satisfactions and enjoyments is spreading through the biomedical research community. Currently, federal law specifically requires "psychological well-being" only for nonhuman primates used in research. (Among the species included in the taxonomic order "primates" are femurs, marmosets, monkeys, gibbons, baboons, orangutans, chimpanzees, bonobos, and gorillas.) However, many IACUCs routinely expect (in accordance with the suggestions of the *Guide*) that investigators will provide enriched environments and well-being for other species as well. There has emerged a large and growing literature relating to well-being for many species used in research, including cats, farm animals, ferrets, rabbits, hamsters, gerbils, guinea pigs, rats, mice, and birds.

The rapidity with which the emerging approach to research-animal welfare is being accepted is matched only by the enormity of the ethical, conceptual, and practical problems it raises. Perhaps the most remarkable feature of the emerging approach is that there has been very little discussion of *why* it is supposedly correct. Most discussions of the moral obligation to assure animal enjoyments or well-being appear to begin with a reminder that in 1985 Congress amended the AWA to require that researchers afford primates "a physical environment adequate to promote their psychological well-being." It is then supposed to be obvious that (1) if providing for the psychological well-being of nonhuman primates used in research is legally required, it must be ethically obligatory as well, and (2) if providing for the psychological well-being of nonhuman primates used in research is ethically required, then researchers have an ethical obligation to provide psychological well-being for all species of research animals capable of experiencing such well-being. Neither (1) nor (2) is self-evidently correct.

One argument for the emerging approach might claim that welfare must include positive experiences, simply in virtue of what we mean

by "welfare." Researchers, then, would be ethically obligated to assure the welfare (*of research animals*.) From this proposition it follows that research animals should be provided positive experiences. However, there are two significant problems with this argument. First, for many years scientists and veterinarians spoke of animal welfare in a way that did not imply that "welfare" includes positive experiences; some experts still speak this way. Proponents of the emerging approach might respond that the traditional way of speaking does not employ a proper sense of "welfare," and that if we want to assure research animal welfare, properly speaking, we must afford positive experiences. To this, adherents of the traditional approach can reply that if animal welfare implies positive experiences for animals, it is not self-evident that we have an ethical obligation to provide such welfare to research animals. Proponents of the emerging approach still need to give an argument explaining why animals *should* be afforded "welfare" in this sense. Second, adherents to the traditional approach can also maintain, as I have argued elsewhere, that what we include in either human or animal "welfare" embodies what we believe a human or animal ought to be provided or ought to have as part of a better rather than worse life. Therefore, one cannot determine whether research-animal welfare includes positive experiences without determining whether research animals ought to be assured such experiences, an issue that is begged when one asserts that animals should be assured "welfare" in the sense in which welfare includes positive experiences.

Adherents of the emerging approach might argue that we owe research animals positive experiences "in return" for our using them in certain ways. There are different possible variants of such an argument, none of which seems especially convincing. One could argue that the mere use—any use—of animals for any research purpose entitles these animals to some positive experiences. But although it seems clear that we should not cause research animals unnecessary or unjustifiable pain, I suggest that it is not self-evident that we must give positive experiences to any animal that we confine or use for any purpose. Perhaps this would often be a nice thing to do, but why is it obligatory if the animals do not suffer or feel 'pain'?

Perhaps advocates of the emerging approach believe that there must be a balancing between the harms inflicted on animals and the positive experiences that they must be given: as a matter of fairness, or perhaps as a matter of maximizing utility, the worse one treats an animal, the more one owes it in positive experiences. There are problems with such a position. First, one needs to get clear about what one means by the kinds of "bad" treatment that presumably require positive experiences. If, as some proponents of the emerging approach may think, the mere keeping of research animals "in captivity" (to use the popular phrase) or the mere killing of research animals entitles these animals to positive experiences, it is again not self-evident why. Perhaps we are supposed to give animals that we cause 'pain' enough positive experiences to "balance out" their 'pain' as a kind of compensation or making-whole. Even if this view has some cogency, however, it does not apply to the large number of animals in research that are not caused 'pain.' Thus, we find a second problem with the argument: it cannot show that assuring the welfare of research animals always requires positive experiences.

A number of scientists and animal behaviorists advocate providing research animals with enriched environments and enjoyable experiences on the ground that enjoyments are necessary to prevent or overcome 'pain' that animals experience in experiments or as a result of their housing conditions. Primatologist Viktor Reinhardt, for example, asserts that the 1985 amendment to the AWA that requires psychological well-being for nonhuman primates does so "in order to ameliorate the adverse effects attendant upon chronic understimulation." Animal scientist Françoise Wemelsfelder states that "millions of laboratory animals are presently housed in small, extremely barren cages, in which opportunities for species-specific interaction with the environment are largely absent"; that in such environments, animals develop abnormal and distressful behavior; and that enriched environments and positive experiences can prevent abnormal behavior and distress. The claim that enrichment or enjoyment should be provided to animals because they prevent or negate 'pain' may sometimes be correct. But this claim does not deviate from the traditional approach because this approach still aims at minimizing animal 'pain' and does not assert, as the emerging approach does, that research animals are entitled to positive experiences in their own right.

Happiness and an Animal's "Nature"

Bernard Rollin offers what is supposed to be an argument for the emerging approach. He maintains that all animals have a nature, "essence," or *telos*. For Rollin, these are not just biologically built-in attributes, but characteristics or interests the satisfaction of which constitutes the very definition of the kinds of animals we are considering. He asserts that "we protect those interests of the individual that we consider essential to being human, to human nature, from being submerged, even by the common good. Those moral/legal fences that so protect the individual human are called *rights* and are based on plausible assumptions regarding what is essential to being human." Rollin believes that a "new social ethic" is beginning to apply this principle to animals, although this ethic does not attempt to give animals human rights.

Rollin maintains that because of the importance to an animal of any inhibition or obliteration of its *telos*, we are ethically obligated to afford this *telos* great respect. We may sometimes be justified in thwarting or negating an animal's *telos*, but we may do so only for the most significant reasons. For example, according to Rollin, attempting to stay alive is part of an animal's *telos*, so that when we kill an animal, we violate its *telos*. The eating of animals, in Rollin's opinion, does not provide us with a sufficiently strong justification for violating their *telos*.

In approving of this "new social ethic," which will require that all animals kept in captivity be afforded happy lives, Rollin appears to argue that it is part of the *telos* of research animals that they be happy and, indeed, that they live happy lives. He also appears to maintain that unless any animal in captivity lives a happy life, it will suffer, not just in the sense of not being happy (which would be an unusual and, I would argue, inappropriate sense of the term "suffering"), but in the sense of feeling unhappy and miserable. This claim—that unless animals in captivity are happy, they will be miserable—seems patently false, even if we assume that all research animals have a *telos* in some sense and that we have a clear idea of what it means for research animals of various species and in various circumstances to have happy lives. Some research animals may suffer by being deprived of certain experiences that seem natural to their species, and this may provide a strong reason not to deprive them of such experiences. But it is quite another thing to claim that such animals, or all research animals, will suffer if they do not have happy lives.

Most animals in the wild spend most of their waking hours engaged in the difficult tasks of obtaining food or avoiding predators. It does not seem even remotely plausible to postulate that most animals in the wild or animals bred for use in research laboratories have a need or drive to be happy or to lead a generally happy life in the same way in which they have physiological needs to eat, drink, or eliminate. Indeed, some animal scientists argue that stressful and often *unpleasant* sensations such as hunger and stress are an essential part of many animals' experiences (part of what Rollin might call their *telos*) because such sensations help in obtaining food and avoiding predators.

In sum, if there is a convincing reason why people who use animals in research have an obligation to assure these animals happy lives, Rollin does not provide it. He may be correct in predicting that society will soon demand happy lives for research animals. However, it does not follow from this that the emerging approach, or the demands for animal happiness that it includes, are ethically defensible.

"Psychological Well-Being" and "Enrichment"

Just as there has been virtually no sustained argument in support of the emerging approach, neither has sufficient attention been paid to terms that are frequently used to express the approach, such as "enrichment," "well-being," "psychological well-being," and "happiness." A committee appointed by the National Research Council issued a lengthy report in 1998 intended to guide institutions using nonhuman primates about how to provide these animals the "psychological well-being" required by the *AWA*. This report announces that the term "psychological well-being" refers "to [the animal's] mental state. It cannot be defined in terms of the [the animal's] environment, although environments certainly influence individual well-being." Having indicated that well-being is an experience or set of experiences, the report claims that "psychological well-being is an abstraction that is inferred by measuring behavioral and physiological variables in the affected primates to determine whether a manipulation had the desired effect." This suggests that psychological wellbeing is not an experience, but a concept that includes a number of different factors, some of which are not feelings or experiences.

The report then states: "An emerging consensus suggests that in addition to physical health the following criteria are important in assessing psychological well-being":

- The animal's ability to cope effectively with day-to-day changes in its social and physical environment (with reference to meeting its own needs).
- The animal's ability to engage in species-typical activities.
- The absence of maladaptive or pathological behavior that results in self-injury or other undesirable consequences.
- The presence of a balanced temperament (appropriate balance of aggression and passivity) and absence of chronic signs of distress as indexed by the presence of affiliative versus distress vocalizations, facial expressions, postures, and physiological responses (e.g., labored breathing, excessive cardiac response, and abnormal hormonal concentrations).

Most of these criteria do not logically imply the presence of any positive mental states, and in many circumstances may not in fact involve them. Some animals may be able to cope with environmental challenges, engage in species-specific behavior, and avoid maladaptive or pathological behavior without living happy, pleasant lives, or without having many enjoyable experiences. Only the final suggested criterion speaks explicitly about mental states. The second part of this criterion appears to identify well-being with the absence of distress, hardly an adequate characterization of well-being. The first part of the criterion calls for a "balanced temperament," which could be part of well-being or happiness if by these states one means something like equanimity or peace of mind. However, by a "balanced temperament" the report means a balance between passivity and aggression. Not only is it unclear what this means, but it does not seem to require a great deal of enjoyments or satisfactions or, on balance, an enjoyable or happy existence. The report makes even more obscure what concept of psychological well-being it employs when it summarizes the above criteria for psychological well-being by calling them criteria for "a primate's psychological health." No definition or characterization is offered of this latter concept.

The term "enrichment" is also often used ambiguously and uncritically. When the term was first proposed, it meant adding features to the environment that would present animals additional and varied stimuli, usually of the sort experienced by their species in the wild. For example, some studies show that chickens housed in environments enriched in this sense exhibit less fear of novel places as well as reduced aggressiveness, cannibalism, and mortality. Other studies, however, have found that enriched environments cause an increase in presumably unpleasant mental states such as aggression. (In one such study male mice were found to be quicker to show signs of aggression when in large wooden cages or in standard plastic cages to which additional objects and extra sources of water had been added.) However, the assumption that enrichment *must* make for happier animals has become so ingrained that the term is now commonly used synonymously with "well-being" or "psychological well-being," or to refer to environmental manipulations that improve the apparent functioning of animals. Identification of enrichment with wellbeing conflates mental states that animals might experience with manipulated environments that supposedly produce these states. This often makes it unclear whether one is supposed to produce a mental state in an animal or merely provide the animal with an objectively observable and manipulable environment.

Animal "Comfort" and "Happiness"

It is not self-evident what we should mean when ascribing to animals mental states such as enjoyment, satisfaction, comfort, and happiness. Images of cats purring or dogs wagging their tails suggest pleasure and satisfaction. Even if such descriptions of satisfied animals are sometimes accurate, in a wide range of cases it is not clear that we can say research animals are enjoying themselves or feeling satisfied or comfortable. One might *say,* for example, that a laboratory mouse eating mouse chow or drinking water feels the same feelings of satisfaction that we do when we eat a meal or take a drink, but this is an assumption and no more. What are we to make of a mouse sitting quietly in its bedding without overt signs of distress (such as shuddering or vocalizations)? Can we conclude that the animal is "satisfied" or "comfortable"? If this is supposed to mean that the mouse is experiencing feelings of satisfaction or equanimity, what evidence do we have for such

an assertion? Many scientists are aware of problems in attributing positive mental states to animals, and typically respond not by relinquishing their claim that animals have these experiences, but by defining the experiences in ways that eliminate experiential elements essential to the use of mentalistic terms when applied to humans.

For example, in its 1992 report, *Recognition and Alleviation of Pain and Distress in Laboratory Animals,* the Committee on Pain and Distress in Laboratory Animals convened by the National Research Council defined "comfort" as "a state of physiologic, psychologic, and behavioral equilibrium in which an animal is accustomed to its environment and engages in normal activities such as feeding, drinking, grooming, social interaction, sleeping-waking cycles, and reproduction. The behavior of such an animal remains relatively stable without noteworthy fluctuation."This definition of "comfort" assures that virtually all laboratory animals, including those with the most rudimentary mental capacities (such as fish), experience comfort, because almost all animals are capable of meeting the purely behavioral conditions (the specified "normal activities") enumerated in the definition. But it hardly follows that all these animals are capable of feeling "comfort" in the ordinary sense, which implies subjective *experiences* of satisfaction or contentment. Employing the strictly behavioral definition might lead one to think that some laboratory animals are much more mentally sophisticated than they really are. Furthermore, regarding animals that may be capable of experiencing "comfort" in the ordinary sense, the strictly behavioral definition may, paradoxically, deprive them of positive experiences. This could occur if researchers assess whether animals are experiencing comfort simply by referring to the presence of behavioral conditions specified in the definition, rather than by referring to evidence of positive mental states in the animals themselves.

It is even more problematic to apply to animals the notions of "happiness" and "happy life." Presumably, happiness is more than a fleeting enjoyment, satisfaction, or comfortable moment. How many and what kinds of positive sensations or experiences are needed for a research animal to feel happiness or have a happy life? Do happiness or a happy life require not just positive experiences, but also an appreciation that one is having these experiences? If so, it is not clear that we can attribute happiness to all (or even most) species of laboratory animals, because it is not clear that they have a sense of *themselves* having positive experiences. In describing people who have had happy lives, we often mean that those individuals have had long lives with many pleasures and fulfillments. Is this a requirement that must be fulfilled for a research animal to have a "happy life"?

Will Animal Welfare Issues Affect Science?

One question that has received very little attention in the animal research literature, but is becoming a concern to some scientists, is how providing enjoyments and satisfactions to research animals might affect the scientific results of important experiments. Primatologist John Capitanio has found that the survival of monkeys infected with simian immunodeficiency virus is significantly decreased when they are exposed to social change (for example, by being moved into paired housing with other monkeys) either after infection or in a ninety-day period preceding infection. It seems, therefore, that "enrichment" may significantly affect immune function, and not always for the better.

If an investigator working on immune function in monkeys keeps his animals in pairs (as most advocates of "enrichment" or "psychological well-being" now insist), the animals might be substantially different, physiologically or immunologically, from monkeys not kept in pairs. As a consequence, the immune function of paired monkeys may not be a good model for monkey—or human—immune function generally. The desire to make such monkeys happier by keeping them in pairs may therefore make the data obtained from them questionable. Studies of animal enrichment and studies of animal models of human diseases are almost always completely divorced from each other, so there is no way to tell if attempts to provide animal enrichment are influencing the models. Yet many scientists assume that a happier animal makes for a better scientific model—usually without any evidence that this is the case.

Other questions that must also be seriously considered by those who expect institutions to give positive satisfactions to research animals include how much this will cost and who will pay. A number of facilities have incurred expenses in the tens or hundreds of thousands of dollars by providing enlarged enclosures and social housing for nonhuman primates. General acceptance of the emerging approach would necessitate en-

riched environments and enjoyable experiences for *all* research species, and would thus require large expenditures. Until it is clear what constitutes such environments and experiences, and how much satisfaction is supposed to be furnished to various kinds of research animals under various circumstances, it is impossible to venture a guess about what such "enrichment" will cost. Nor is it clear who will pay. Many researchers already pay their institutions significant amounts for housing their animals; these payments usually come out of the grants that pay for the researchers' work. Furthermore, substantial competition exists for available grant money, and IACUCs typically have no budgets of their own or have only enough funds to run their administrative functions. Many research projects may be precluded altogether: investigators and their institutions could lack sufficient funds to do research in a manner that prevents and alleviates any attendant animal 'pain', much less in a way that provides the levels of animal enjoyment or happiness that may become mandatory. Perhaps grants for research will come to include funding for animal enrichment, but if this happens, the likely result is that fewer experiments will be funded.

The traditional approach assumes that 'pains' are bad for animals, just as they are for humans, and does not make less of mouse 'pain', for example, than it does of 'pain' in cats, dogs, or primates. It is not clear whether advocates of the emerging approach believe we must (1) afford all research animals the same amount or degree of pleasure, (2) afford each animal the maximum amount of the kinds of pleasures it can experience, or (3) afford each animal an equal proportion of the amount of the kinds of pleasures it can experience. Do some animals deserve more pleasures, or more extensive kinds of pleasures, than others? If so, why, and how many and what kinds of pleasures?

From Research Tools to Friends

As the reactions to my hypothetical monkey experiment indicate, once people believe that the welfare of one species consists of its not just avoiding 'pain' but enjoying positive experiences, it will be difficult for them not to extend this view to other species. It may be that the "welfare," so conceived, of a mouse would be composed of fewer and more primitive kinds of satisfactions than would the welfare of a rhesus monkey. However, if one believes that positive experiences for an animal are part of its welfare, it is not clear how one could restrict this belief to primates or a limited number of favored species.

Moreover, as Rollin argues, if society believes that all animals kept in confinement for human purposes are entitled to some positive enjoyments, it will be extremely difficult for society not to advocate providing such animals with happy lives. If pleasure or enjoyable experiences are goods for animals as they are for humans, it would appear that more pleasure is better than less. Therefore, an animal's welfare is better served the more pleasures and enjoyments it experiences. It would appear, moreover, that the *best* state of welfare for an animal would be a happy life, because happiness (by definition, the critical part of a "happy life") seems to be the ultimate positive good that a sentient being can experience.

If we have an obligation to provide research animals with happiness and happy lives, we are saying that the animals' happiness is an end in itself, a fundamental requirement, that must (together with the likelihood of research-animal 'pain') be balanced against the potential benefits of experiments to determine the experiments' appropriateness. Thus, even if the supposed obligation to assure research-animal happiness does not always preclude animal experiments, any method of experimentation or housing that does not assure such happiness would provide another, new factor that would count, to some extent at least, against doing such experiments. However, happiness is not a minor condition; it is a major benefit. Therefore, if we have even a moral obligation to assure research-animal happiness, this must surely be a *strong* obligation, one with great weight. If this were so, we would be able to justify animal experiments that did not assure animal happiness only when such experiments were of great value, just as we already believe that very painful experiments can be justified only if they are of great value. It seems clear that many experiments and kinds of research that are now regarded as acceptable would no longer be so because one would not be able to demonstrate that they are of *great* value. For example, few if any IACUCs now object to using mice for the harvesting of tissues (such as those of the liver and kidney) to study the effects of various chemicals on such tissues. These animals are routinely euthanized soon after their arrival at a research facility, and doing this to animals is usually justi-

fied on the ground that they will experience no 'pain.' However, if investigators have a strong obligation to give these animals *happiness* or *happy lives* before they are killed, a demonstration of the research's great value would have to be made, something that often will not be possible. Moreover, fulfilling an obligation to provide research animals with happiness or happy lives would appear to require allowing such animals to enjoy themselves for at least some time before they are killed. This, in turn, might require that before a researcher may euthanize an animal, he must know the animal's prior history in order to gauge how many happy experiences it has had in the past. All these things would involve time and money that many investigators do not have.

Another inevitable consequence of viewing research animals as entitled to happy lives will be that some species—perhaps most—will be exempt from research altogether. I have spoken with a number of scientists who believe that it is never acceptable to do medical research using chimpanzees because of these animals' substantial intelligence and their capacity for sophisticated pleasures. (In fact, research on chimpanzees is uncommon.) I have spoken with members of many IACUCs who indicate that their committees would be extremely reluctant to approve experiments not only on chimpanzees, but on other primates as well, such as baboons and macaque monkeys. These IACUC members suggest that such experiments would only be approved if there were a showing of great benefit from the proposed research. As more species of primates and nonprimates come to be viewed as capable of, and then entitled to, enjoyments and, indeed, happy lives, the same protection will be extended to them.

Ultimately, the most important effect of the emerging approach will be that many—perhaps most—research animals will be viewed in much the same way as we view pets. We will come to care about them and their lives so much that experimenting on them will be unthinkable.

One does not care about or seek to assure an *animal's* happiness in a vacuum. We must distinguish between two different positions. On the one hand, one may want to respect an animal's natural tendencies and behaviors and to seek to give them opportunities for expression. On the other hand, one may want to make that animal *happy.* The former attitude is defensible on a number of grounds, including the fact that certain kinds of treatment that restrict natural behavior do sometimes appear to cause animals to suffer. However, animal happiness is not a common state in the wild. To want animals to live happy lives is to want animals to have something they do not ordinarily have, something that can require special manipulations of their environments and lives. Some of these manipulations, such as the provision of good veterinary care, can be very costly. Once one believes that research animals are entitled to happiness—as benevolent, humane, and obviously correct as this belief seems to be to many people—one has *already* committed oneself to viewing research animals in ways that prevent their use in research. The belief should not be embraced without an understanding of this implication.

There are animals about which we know enough to be able to say that they can have enjoyments and live happy lives (although we may sometimes exaggerate the nature and depth of their sensibilities). Society has gained this knowledge through generations of observation, and individuals have gained it through continuous, lengthy interaction that is sometimes quite close. These animals are pets: dogs, cats, birds, and other animal species typically regarded as friends, and often as members of the family. (Note that it may not be possible to attribute mental states such as happiness to all animals kept as pets—reptiles, for example—but there can be no doubt about the more sophisticated species.) Many people want to make such animals happy, and sometimes accept significant economic and personal sacrifices to do so. We do these things for our pets because we *care* about them. As I argue in *Veterinary Ethics,* it is not irrational or ethically indefensible to care about these animals while accepting the use of others, even members of the same species, in research. We are generally justified in heeding the needs and desires of members of our families more closely than we do those of strangers, and we have ethical duties to family members that sometimes require ignoring or even slighting others.

Likewise, it is both sensible and sometimes ethically *obligatory* for us to care about and seek the health, welfare, and happiness of pets. We are not obligated to befriend them and take them into our homes and lives, but once we get to know individual pets, we do things that make it psychologically impossible and sometimes morally impermissible not to seek good things for them.

(I had a wonderful dog, a friend for eighteen years. In his younger days, there was never a moment in which he did not entertain or accompany me when I needed or wanted his attentions. I cannot confidently say that he consciously sought to please me, and I certainly cannot say that he did these things "in return" for my entertaining and caring about him. Nevertheless, when old age brought about the decline of his health and the loss of his eyesight, I spared neither time nor expense in keeping his life comfortable and pleasant. Many people can tell similar stories.) We make our pets dependent on us, not just for food and shelter but also for emotional satisfactions they clearly enjoy. Many of us become dependent on them for companionship and the happiness they can bring us. Once taken into our lives, pets can become an important part of them, and the complex patterns of dependency, interaction, and friendship or love that we have with our pets make it impossible not to care—and sometimes care deeply—about them.

It may be possible for some people who do not want to view research animals as friends or companions to attempt nevertheless to give them happy lives. However, I submit that over time, people who attempt to give animals happy lives in a research setting will come to view them as pets or friends. For once one does attend to a research animal's happiness, one comes to view the animal as an individual, the needs and interests of which are important. If it is not happy, one wants to make it so; if it is happy, one wants to make it happier. One attends to it often, seeking to know how it is doing. One develops a bond with any animal that one cares enough about to want it to have a happy life (assuming it is a kind of animal to which it is sensible to attribute happiness). Once this bond is established with an animal, it becomes extremely difficult to do anything that causes the animal 'pain', to use it in a scientific study, or to kill it. In short, it becomes extremely difficult to use the animal in research.

In the short term, if the emerging approach gains ground and is applied to a wider range of research animals in a wider range of research settings, animal research will become more expensive, and more troublesome and difficult for IACUCs to approve. These factors will lead to reduced amounts of research. Eventually, if research animals come to be viewed as our friends—and as worthy of happiness and happy lives as we are—animal research will stop. This is precisely what animal activists who promote the emerging approach want.

A Paradigm Shift: Why It Is Happening

The contributions of animal research to the health, safety, and well-being of both humans and animals have been enormous. Without animal research, very few of the medical advances we expect today for ourselves and our loved ones would be possible. Vaccines for rabies were developed using dogs and rabbits. Smallpox, which killed more than two million people, can now be prevented because of research on cows. Diphtheria was conquered with research on guinea pigs and horses. Polio, the scourge of the 1950s, would have been impossible to prevent without the use of monkeys. Because of animal research, we now have vaccines for measles, rubella, chicken pox, hepatitis B and Lyme disease. The insulin that allows millions of people with diabetes to continue to live was developed using dogs. The effectiveness of penicillin and other antibiotics that have saved tens (perhaps hundreds) of millions of lives was established through research on mice and other rodents. So many procedures and medications that prevent death, spare pain, and make life productive and enjoyable have been developed through animal research that it would take a discussion many times the length of this paper to document them all. Cardiac bypass surgery, cardiac pacemaker implants, angioplasty to unblock clogged cardiac arteries, artificial hip replacements for victims of arthritis, fixation devices to mend broken bones, cataract surgery, kidney dialysis, antibiotics, medications for high blood pressure, anticoagulants to prevent clots and stroke, chemotherapy and radiation therapy for cancers, rehabilitation techniques for victims of stroke and spinal cord injuries, laparoscopic surgery—these are just a few of the medical advances that have been developed or tested on animals.

Animals, too, benefit immeasurably from animal research. Vaccines for distemper, parvovirus, rabies, and feline leukemia; antibiotics for infections; surgical treatments for injuries and infirmities; nutritional foods—all these and much more have been developed using research animals. Indeed, many procedures and treatments (such as chemotherapy, antibiotics, hip replacement and other orthopedic surgical techniques, and medications to control glaucoma and blindness) were initially developed or tested on animals for use

on humans, and are now used to treat animals as well.

Today, researchers are using animals in attempts to understand (and hopefully cure) AIDS, breast cancer, diabetes, leukemia, Alzheimer's disease, amyotrophic lateral sclerosis (Lou Gehrig's disease), chronic pain, cystic fibrosis, and a myriad of diseases, injuries, and infirmities that continue to plague humans and animals alike. To stop or seriously curtail animal research would thus cause serious harm to many. The vast majority of physicians, veterinarians, and biomedical researchers know this. They refute the claims of activists that animal research has not done any good and is unnecessary for future medical progress with overwhelming evidence and compelling arguments. Yet many of these same scientists, physicians, and veterinarians are joining the increasing chorus of calls for animal happiness that threatens animal research. Why is this happening?

Although the notion of a "paradigm shift" may be overused, it is appropriate in the case of the movement, in society and the research community, from the traditional approach that seeks to minimize animal 'pain' to the emerging approach that calls for animal happiness. As noted in Section VII, one usually finds virtually no argument for the emerging approach or for claims that it is superior to the traditional view. The *Guide,* for example, does not explain *why* all who use animals in research are obligated to assure animal well-being instead of welfare. This is supposedly a truism about which there neither is nor can be any disagreement. Many respondents to my hypothetical monkey case, as well as many laboratory-animal veterinarians and IACUC members, find it patently obvious—not even worth discussion—that environments should be enriched to promote research-animal well-being and psychological well-being. They may admit that this cannot be accomplished now in light of financial constraints and lack of knowledge about enrichment, but there appears to be little disagreement about its desirability. An apparently increasing number of IACUC members, veterinarians, and scientists are so certain that enrichment and animal happiness are good that they do not ask how they might affect scientific results. Furthermore, many of these same people admit that they cannot define or carefully characterize animal "well-being," but insist that it be promoted anyway. The term "enrichment," which need not imply animal happiness, has nevertheless become synonymous with "happiness" for many in the research community; this is because they simply assume that making housing environments more "normal" or "natural" will produce the happiness we supposedly must seek for research animals. With very little empirical evidence about what kinds of pleasures animals of various species are capable of experiencing, it is assumed that the vast majority of animals used in research are capable of the most varied and exquisite pleasures.

Today, researchers are using animals in attempts to understand (and hopefully cure) AIDS, a myriad of diseases, injuries, and infirmities that continue to plague humans and animals alike.

In short, a new way of viewing research animals appears to be taking hold, a way that is neither motivated by nor susceptible to factual verification. It is beyond the scope of this essay or my own expertise to speculate about why this is happening. Franklin Loew, former dean of the veterinary schools at Tufts University and Cornell University, has suggested in another context that most people are coming to view all animals through an urban and suburban prism. Most people now live in cities or suburbs, and the only live animals with which they come into contact are pets. These people, Loew believes, begin with a paradigm of animals as pets and believe that all animals have the same capacities and are entitled to the same benefits as their beloved cats and dogs. Loew's hypothesis is interesting, but it does not explain why scientists and veterinarians, who presumably know more about research animals, would accept such a view. The passage of the amendments to the AWA in 1985 marked the first time that the provision of psychological well-being was required for certain research animals; this was a critical event in encouraging the view that some research animals should be given positive enjoyments. However, this too cannot explain why so many in the research community now find it obvious that all research animals deserve happiness. Note that most scientists and veterinarians who initially opposed the amendments' requirement did so on the ground that we simply do not know what psychological well-being is in primates, much less how to achieve it.

Unless we can understand why the emerging approach is gaining ground in society and the re-

search community, there will be no way to combat it.The task of critical examination will become more difficult—and will require even more courage on the part of critics—the more the emerging approach insinuates itself into society's view of research animals. We will need more careful conceptual analysis of general terminology such as "enrichment," "welfare," "well-being," and "psychological well-being," as well as analysis of terms that describe positive mental states that animals (or at least some animals) may be thought to experience. We need more careful empirical study of what happens to animals in so-called "enriched" environments, and of the extent to which these environments skew or invalidate experimental data. Most importantly, however, we must understand that demands for animal happiness posed by the emerging approach to animal welfare are dangerous to the research enterprise.

SUGGESTED FURTHER READINGS

National Research Council, *Recognition and Alleviation of Pain and Distress in Laboratory Animals* (Washington, DC: National Academy Press, 1992).

National Research Council, *The Psychological Well-Being of Nonhuman Primates* (Washington, DC: National Academy Press, 1998).

Rollin, Bernard E., *Animal Rights and Human Morality,* 2d ed. (Buffalo, NY: Prometheus Books, 1992).

Rollin, Bernard E., *Farm Animal Welfare: Social, Bioethical, and Research Issues* (Ames: Iowa State University Press, 1995).

Tannenbaum, Jerrold, "Ethics and Animal Welfare: The Inextricable Connection,"
Journal of the American Veterinary Medical Association 198, no. 8 (1991): 1360-76.

Jerrold Tannenbaum is professor of Veterinary Medicine at the University of California, Davis. He is also a member of the Bioethics Program at the University of California at Davis School of Medicine. He is the author of Veterinary Ethics *(2d ed., 1995), the first major comprehensive study of that field. His research interests include veterinary policy studies, animal ethics and law, animal research ethics, and the study of the bonds between humans and animals. He is also the founder (and past president) of the Society for Veterinary Medical Ethics. This article originally appeared in* Why Animal Experimentation Matters: The Use of Animals in Medical Research *(Transaction, 2001).*