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# **ANIMAL PAIN**

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## **Introduction**

Some time ago, I received a telephone call from an eminent primatologist asking me to give the keynote address at a scientific seminar on animal pain. My first response was to express surprise that they were inviting a philosopher. His reply was remarkable, if only for its rarity among scientists: "The truly interesting and important issues concerning pain in animals are not scientific ones," he said. "They are moral, philosophical, and conceptual ones. And the total failure of science to engage or even acknowledge these issues discredits biomedical science and weakens its conceptual base." I hope to show you that my colleague was indeed correct, and that the scientific community's attitude towards animal pain is muddled, inconsistent, incoherent, and perpetuated by self-serving ideological positions which are rarely subjected to logical scrutiny.

## **The Dilemma of Pain Research**

Perhaps the primary issue which needs to be brought forth is the fundamental ambivalence displayed by the scientific community regarding the reality and knowability of animal pain. As I shall indicate, this is just a special case in a generalized ambivalence endemic among scientists towards matter of animal consciousness and awareness. Simply stated, the ambivalence in the case of pain manifests itself as follows: On the one hand, scientists are loath to speak of animals experiencing

pain or pleasure (or any mental state) for such claims are felt to be unverifiable at worst (and hence unscientific), and anthropomorphic at best. On the other hand, scientists often find themselves incapable of doing and describing their own work if they do not presuppose and speak of animal pain (and other mental states). The foregoing dilemma, which puts scientists in a logically incoherent position, is rarely resolved—most often, in fact, it is simply ignored.

This point revealed itself clearly at an American Association of Laboratory Animal Science (AALAS) seminar at which I lectured, held a few years ago on standards of care for domestic farm animals used in research (AALAS 1982). Participants found themselves unable to discuss the welfare of farm animals without talking about the conditions which make these animals happy, but were professionally reluctant to advance claims about animal happiness, claims which were seen as unscientific. Most participants sailed over the difficulty by talking about what conditions make animals “happy”—a move which doubtless made them terminologically more comfortable, but which simply glossed over the issue we are discussing. (What, for example, is the difference between happy and “happy”?)

A moment's reflection will reveal that, on some level, science is absolutely committed to the belief that animals feel pain (and experience other mental states) which are, to a significant degree, analogous to what human beings experience. If animals did not, it would surely be absurd to do pain research on them, and to study dose responses to anesthetics and analgesics. In fact, not only does such research logically presuppose that animals feel pain, it even attempts to provide some quantitative measures of the pain and of its control by analgesics through such tests as the hotplate (writhing) test, the tail-flick test, skin-twitch test, the head-withdrawal test, pressure tests involving tails and digits, and electrical stimulation tests (Lineberry 1981). Further, such tests also presuppose some meaningful analogies between animal and human pain, for they are employed in part to screen substances for potential analgesic effect in humans.

A similar tension, of course, exists in psychology. Psychologists reject allegedly anthropomorphic ascription of human mental states like fear, anxiety, depression, boredom, and hopelessness to animals, as being outside the scope of legitimate scientific claims. However, the unstated presupposition of psychological research is that these states are analogous in humans and animals, and that their study in animals provides valuable insights into their nature in humans. The currently popular work in hopelessness and learned helplessness provides a very clear example of how psychologists who do such animal work must presuppose analogous states in men and beasts. Presupposing such analogies leads to the inevitable and much discussed “psychologists’

dilemma" (which is also the "pain physiologists' dilemma"): If these noxious mental states in animals are sufficiently analogous to those of humans to provide adequate models for human experience, what right have we to induce them in animals? And if they are totally disanalogous, what is the value of studying them? Such embarrassing conclusions again lead to a form of learned helplessness among the psychologists—unable to resolve the tension between their professed skepticism about animal consciousness and their implicit reliance upon it, they avoid the issue altogether, and simply wish it out of existence.

Some five years ago, I personally experienced an extraordinary example of the contradiction we have been discussing. I had served on a panel on animal pain with a well-known pain physiologist who spent the better part of an hour trying to show that since the electrochemical activity in the cerebral cortex of a dog differed dramatically from the electrochemical activity in the cerebral cortex of humans, and since the cerebral cortex is the information processing area of the brain, the dog didn't *really* feel pain in any sense that humans do.

The time came for my rebuttal, and although I am usually long-winded, in this case my response was quite brief. I said, "Dr. X, you are justly acclaimed for your work in pain." "Thank you," he said. "You do that work on dogs, do you not?" I queried. "I do," he replied. "You extrapolate the results to people, do you not?" I queried. "That is correct," he said. "In that case," I said, "I have nothing else to say!" In other words, either his paper was false, or his research work was—he could not have it both ways.

## Moral Consequences of the Dilemma

If a lack of intellectual coherence in science were the only consequence issuing from the scientific community's ambivalence on animal pain and awareness, that alone would justify a vigorous attempt to resolve the problem. But more is at stake than coherence. Moral issues also suffer. It is, of course, a fundamental principle of logic that from a contradiction anything at all may be deduced, and this is precisely what occurs in this area. For what essentially occurs is that whenever it is pragmatically expedient, one term of the contradiction is simply suppressed and ignored. If it is convenient to study pain mechanisms or analgesia in animals, it is taken for granted that animals feel pain. But when it is convenient or conscience-salving to ignore the painful consequences of one's research or teaching manipulations on animals, out comes the claim that one cannot really know what or even *that* animals experience. This in turn enables researchers to avoid having to deal with the infliction of pain as a moral problem. Almost anyone

who has been trained as a veterinarian in this country will at some point have encountered the claim that animals don't really feel pain as we do, or if they do, it is purely momentary and transient. Not too many years ago, I am told by my older veterinary colleagues, this was a mainstream ideology, commonly asserted. A leading veterinary pain expert, Dr. Michael Kaplan, estimated that probably 75 percent of veterinarians still view anesthesia as chemical restraint (personal communication), and I myself encountered this very dramatically at a veterinary college. I had just finished asserting that veterinarians at least couldn't doubt that animals feel pain or else why would they study anesthesia and analgesia. Up jumped the associate dean, livid with rage. "Anesthesia and analgesia have nothing to do with pain," he declared, "they are methods of chemical restraint." (An Australian scientist in the audience responded beautifully: "He's daft," he declared. "What the hell do they need restraint for if they are not in pain?")

The moral cash value or consequence of all this is readily documentable: Little is done in the course of animal research to control even "unnecessary" pain—i.e., pain not essential to the protocol in question. If animal pain is not real, why treat it? This philosophical position goes a long way towards explaining why so few protocols embody provisions for laboratory animal analgesia; and why, incredibly enough, virtually no conferences have been held on laboratory animal analgesia (the seminar I attended was only the second one ever held) (Erickson 1983), and why, indeed, the use of analgesia is so rare in ordinary veterinary practice and so little taught in veterinary schools. It also helps explain why few scientists have, until very recently, addressed the ethical questions arising from inflicting pain on animals.

In fact, many researchers do not even understand that the infliction of pain constitutes an ethical question. I recall one group of researchers telling me that the failure to use anesthesia and analgesia in certain protocols has nothing to do with ethics—it is solely a scientific decision arising out of a desire not to introduce new variables which might skew the data! It also explains why many scientists see the social demand for control of pain as an illegitimate intrusion by non-experts into their freedom of inquiry, rather than as a legitimate moral claim, and thus oppose legislation which would only require control of pain "not essential to the protocol." It is ironic that rodents are the most infrequent recipients of analgesia in the course of research done on them, yet that, jumping to the other side of the contradiction, virtually all analgesics have been tested on rodents, so dose response curves are well known.

To summarize: The philosophical problem built into the ambivalence about animal pain that we have been discussing may be restated as follows: Either animals feel pain or they do not. Science, in its activities, and insofar as its practitioners are people of good common sense, has

presupposed that animals do feel pain, and the consequences of current biological theory assert this is surely the case. Conversely, the ideology of science has tended to claim either that animals do not feel pain, or at least that we cannot know if they do, just as we cannot know about any mental state in animals. (The latter two claims tend, of course, to slide into the former.) This in turn circumvents the need for ethical theorizing about when pain-infliction is justifiable.

## **Mechanization of Pain and Stress**

In actual practice, the scientific community has sometimes tended to try to smooth over this paradox. It has done so, in general, by treating pain as a mechanical physiological or neurophysiological occurrence, rather than as a mental state or mode of awareness. In this way, it has tried to avoid "unscientific claims," and has also assuaged common sense and moral reluctance to inflict uncontrolled real pain on animals. On this essentially Cartesian view, pain responses are objectively studyable, physical, mechanical states, rather than states of awareness. Such an approach admits the existence of physiological mechanisms of pain, while ducking the issue of how the animal feels. A good example of this approach may be found in the aforementioned old view of anesthesia as chemical restraint. A more recent example may be found in the American Physiological Society symposium held on animal pain, which deals in exquisite detail with the neurophysiology and neurochemistry and mechanisms and behavior involved in animal pain, while almost never discussing the psychic and morally relevant component, namely, that the animal hurts (Kitchell and Erickson 1983).

A similar conceptually problematic attempt to deny other states of awareness, especially unpleasant ones, by reducing them to mechanical processes rather than mental states may be found in the widespread and notoriously fuzzy use of the concept of stress as a catchall for fear, anxiety, and other sorts of misery. Stress is often felt to be objective and measurable, and is defined primarily in terms of activation of the pituitary-adrenal axis, or in other physicochemical terms. What is rarely, if ever, mentioned in the scientific literature is the psychological-experiential component; the fact that the stressed animal is doubtless having unpleasant sensations at least somewhat analogous to sensations humans have under similar circumstances, which are responsible for the activation of the mechanisms studied. In other words, an animal would surely not show physiological signs of stress under various unpleasant conditions if it did not experience them as unpleasant. (Fully unconscious animals do not react to most stresses.) Some recent work has begun to recognize this point, and argues, as I have done,

that the purely physicalistic explanation of stress is senseless without an explicit or implicit reference and appeal to what the animal is experiencing, which experience in turn activates these mechanisms (Archer 1979). In short, much of the literature is guilty of confusing physical signs and effects of stress with stress itself, and with using these physical signs of stress as a catchall for a variety of noxious mental states in its effort to avoid reference to animal thought and feeling.

Some scientists have carried this sort of mechanization of animal experience to incredible lengths. One of my colleagues in zoology recently took me to task for saying that horses prefer the taste of rolled oats with molasses to that of ordinary rolled oats. "You can't scientifically say that," he told me. "At most you can say that there is a mechanical process which leads them to be drawn towards the molasses, much as a thermostat is affected by temperature."

In other words, insofar as many scientists have addressed the dilemma we described, they have done so by eliminating reference to mental states, and reducing such notions as pain and fear to the physical processes associated with them. Why has this occurred? Why have they not gone the other way, and simply assumed, along with common sense and Darwin, that such animal experiences as pain are, *mutatis mutandis*, something like our own?

## Philosophy of Science and Animal Consciousness

An answer to this question requires that we make a brief excursus into the history and philosophy of science. In the late nineteenth century, along with the ascendance of Darwinian biology, came a belief that psychological or mental states like pain, fear, anger, grief, and the like were surely as phylogenetically continuous as morphological and physiological traits. Highly respectable scientists like Darwin, Romanes, and H.S. Jennings took for granted the evolutionary continuity of thought and feeling, and their studiability in animals. Darwin himself, of course, wrote of the *Expression of Emotions in Man and Animals*, and studied the problem-solving ability of earthworms. Much interesting research was done under the assumption that animals could think and feel. By 1920, however, this view had been banished. Ironically, its banishment had nothing whatever to do with new empirical scientific discoveries which falsified it, or even with new conceptual analyses which showed it to be logically flawed, as Einstein had done with certain concepts of classical physics. Rather, what occurred was the rise of a new philosophy of science, which promised to set science on the right path, eliminate excess baggage from science, and banish anything that could not be verified factually, and which further introduced new values

into science while claiming that science ought to be value-free. This movement peaked in positivism and behaviorism, both of which denied the cogency of talking about mental states in man *or* animal (though much of positivism was phenomenalist), and in the case of behaviorism, came perilously close to asserting that we don't have thoughts, we only think we do (Rollin 1985). Psychology became the study of behavior, and subjective states of any sort were ordered out of existence in the name of scientific methodology. Most scientists working today continue to pick up some version of this simplistic philosophy of science along with their science in the course of their training, even though it has been largely abandoned by philosophers of science in recent years. So powerful is this ideology that it serves to eclipse common sense, coherence (as represented by evolutionary theory's clear presumption of continuity of mentation), and the acknowledgement of legitimate value questions in science.

The philosophical denial of consciousness and its studiability have certainly shaped the form of twentieth century science, but far more radically with regard to animals than to humans. After all, no scientist, not even the most ardent behaviorist, can ever doubt that he is conscious, or that his co-workers are conscious, or that they are feeling pains when they describe their thoughts and feelings to him in boring detail. On the other hand, in the case of animals, this new philosophy meshed nicely with convenience. If one's research necessitates hurting animals, one's work is made ever so much easier by a philosophy which suggests that animals aren't really feeling pain, they are "exhibiting pain behavior," aren't really crying out, but "vocalizing," aren't really suffering, but only "exhibiting mechanical responses." One need no longer feel morally ambivalent about hurting animals to advance knowledge, or feel compelled to assess that hurt morally and mask it with analgesia which may skew results if animals aren't really hurting, only responding. As we said earlier, this was buttressed by the notion that science was value-free, and that such judgments are scientific, not moral.

Thus the skepticism about animal pain and awareness which dominates twentieth century science has a variety of sources which reinforce one another. In the first place, it was part of a general move to allegedly eliminate the unverifiable from science. In the second place, it was part of a general move to make all science as reductionistic and as close to physics and chemistry as possible for the sake of exactness. In third place, it provided an effective method for closing off moral reservations and ambivalences about invasive animal research—if animals were in essence neurophysiological machines, imputing unpleasant mental states to them was just anthropomorphism, a prescientific bias which need to be guarded against.

What happened in the twentieth century was the same thing that happened with Descartes in the seventeenth—philosophy was invoked in order to overcome common sense. In the seventeenth century, Descartes had said that animals were machines with no souls, minds, or feelings, thereby reconciling in one master stroke the demands of Catholicism that animals not have souls with the demands of a growing science of physiology which forced in its quest for knowledge to do what common sense called atrocious and painful procedures to animals without any way of controlling the pain. No need to control the pain, said Cartesian physiologists, since it is not really experienced pain, it is rather merely mechanical response.

### **Other Arguments for Ignoring Animal Pain**

To the general skepticism about animal consciousness in the early twentieth century were added other palliative arguments designed to teach young scientists and veterinarians that concern for animal pain was largely sentimental anthropomorphism. As many older veterinarians have told me, they were taught that animal pain is merely momentary—with teachers citing as evidence, for example, the fact that a cow will eat immediately after surgery. Such arguments, of course, neglect the fact that it is a selective advantage for a cow to behave that way regardless of how it feels. A cow that didn't eat would be weakened considerably, a cow that didn't graze with the rest of the herd when hurt would be flagged as vulnerable to predators.

In a similar vein, sometimes it was said by philosophers *and* scientists that animal pain, while perhaps momentarily present, was insignificant, for animals lack concepts enabling them to anticipate and remember. For example, the suffering engendered for us by worrying about and anticipating going to a painful situation such as the dentist which often makes the pain ever so much worse, simply does not arise in animals. Aside from the fact that animals clearly do anticipate and remember (for how else could they learn), another point is relevant here. If animals are indeed locked into what is happening at the moment, we are all the more obliged to try to relieve their suffering, since they themselves cannot look forward to or anticipate its cessation. For them there is no *hope*.

Spinoza pointed out that understanding the cause of an unpleasant sensation can diminish its severity, and not understanding its cause can increase its severity (Spinoza 1677). If this is the case, (and Spinoza's conjecture has been borne out by empirical work on humans), then surely we have reason to believe that animals, especially laboratory animals, suffer perhaps more severely than humans since they have no

grasp of the causal chain occasioning the pain. At least one leading animal pain psychologist, Professor Kitchell, takes a similar line. He divides pain into a sensory-discriminative dimension and a motivational-affective dimension. The former concerns itself with locating and understanding the source of pain, the latter with escaping from it. Kitchell speculates that since animals are more limited than humans in the first dimension, lacking human intellectual abilities, it is plausible that the second dimension is correlatively stronger. In short, since animals cannot intellectually deal with danger and injury as we do, their motivation to flee must be correlatively stronger than ours—in short, they probably *hurt* more (personal communication).

Perhaps the most ironic and perverse argument against concern with animal pain is related to the two just discussed. It is often said that worrying about animal pain is misplaced anthropomorphism, for given painful circumstances where humans would be screaming and writhing, many animals show very few such signs. Aside from the point made earlier that stoic behavior doubtless confers a selective advantage on animals, we can make a much more ironic point. It is not the people who impute pain to animals who are anthropomorphic—they have good evolutionary, neurophysiological, and behavioral reasons to do so as I shall discuss shortly. It is those who deny pain to animals on the grounds that their behavior is unlike humans who are anthropomorphic—who else but someone guilty of the grossest anthropomorphism would expect a bovine in pain to behave like a human in pain. Animals do show unique pain behavior—it just doesn't happen to be human pain behavior. (People who know horses well in some cases are aware that the tightening of the palpebral (eyelid) muscles can eloquently bespeak great agony.)

It is difficult to believe that many of these beliefs were taken seriously intellectually. They seem, rather, to have been perpetuated by extra-logical factors. So perpetuated, of course, was the general lack of social concern for animals—even though common sense acknowledged the existence of animal pain, such people did not worry very much about it morally. We should also consider the probability that perpetuating the above ideology served as a highly useful defense mechanism for researchers enjoined in invasive work on animals. Researchers are, of course, as decent and reluctant to inflict pain as anyone else, even if they believe that what they are doing is important. Simply denying that animals felt or really felt pain helped forestall guilt and compunctions. If one did not genuinely believe that animals were not hurting, one would be forced to look into an abyss from which it is not easy to return.

## Philosophical Bases for Affirming Animal Awareness

Philosophically, the denial of thought awareness and pain to animals on the grounds that we cannot experience them is not cogent. In the first place, as is well known, if we are so positivistic as to claim we cannot know anything we do not directly experience, we can make no claims about anyone's mental states but our own. Therefore, we cannot claim to know that other humans have minds or pains either. For that matter, as Berkeley showed (Berkeley 1710), if we restrict knowledge to our own sensations and perceptions, we can't even know that there is an external, public world existing independently of our perceptions of it! So the same hard line which claims we cannot know animal mental states, if carried to its logical conclusion, would render impossible both science (of an objective world) and interaction with our fellow humans.

In fact, the same sorts of things which count in favor of attributing mind, awareness, and pain to other human beings count in favor of attributing them to animals. Looking at pain, we find in the first place that the *behavioral* evidence which helps license us to attribute pain to other humans is also present in the case of animals. Animals cry out when injured, are tender at point of injury, cringe before blows, avoid electrical shock and heat, etc., etc. True, their behavioral responses are not always the same as ours—compare the horse's wincing rather than crying out when in pain—but, for that matter, human pain responses across different cultures and subcultures are not the same either. Compare, for example, the way in which middle class Jewish children are encouraged to express pain when they fall down as toddlers as contrasted with children raised on western ranches ("Get up, you aren't hurt!"). Compare athletes or runners who glory in pain, with others who think they are masochistic or mad. Much research has been done showing that cultural determinants loom large in shaping the experience, threshold, and expression of pain.

Classical research indicates that sociopsychological factors are major factors in shaping the experience of pain in humans. It has been shown, for example, that Northern Europeans are less susceptible to painful stimuli than are Southern Europeans, and this is explained by cultural rather than biological differences (Wolff and Langley 1975). In Beecher's classic work earlier this century (Beecher 1956), he showed that wounded soldiers required less analgesia than non-military surgical patients, even though the injuries to the soldiers were far more massive. He explained this by the fact that the soldiers were seeing a real benefit in the wound (i.e., no longer having their lives at risk on the battlefield), whereas the surgical patients were just focused on the pain. Such facts have sometimes been used to claim that animal pain is qualitatively different from human pain, because it is untouched by psychological

factors. In actual fact, clinical veterinarians dispute this. A wounded animal seems to suffer less pain in the presence of an owner, less when treated at home or in familiar surroundings and when reassured, less when rapport is established with the clinician, less when stroked, etc. (If you doubt this, ask any vet who makes house calls.)

Second, in defending the view that animals feel pain, we may cite neurophysiological analogies between humans and animals, at least through the vertebrates. Ironically, the Cartesianism which made the science of physiology possible led to its own undoing, by an ever increasing demonstration of the identical neurophysiological mechanisms in humans and animals, mechanisms which make it highly implausible that animals are merely machines if we are not. Thus, here as elsewhere, we have scientific grounds for the reappropriation of common sense. Pain and pleasure centers in the brain, analogous to those found in humans, have been reported in birds, mammals, and fish (Walker 1983), and the neural mechanisms responsible for pain behavior are remarkably similar in all vertebrates. Anesthetics and analgesics control what appears to be pain in all vertebrates and, perhaps most dramatically, the biological feedback mechanisms for controlling pain seem to be remarkably similar in all vertebrates, involving serotonin, endorphins and enkephalins, and substance P (Kelly 1984). The very existence of endogenous opiates in animals is powerful evidence that they feel pain. In certain shock experiments, large doses of naloxone have been given to traumatized animals, reversing the effect of endogenous opiates, and it has been shown that the animals so treated will die as a direct result of uncontrolled pain (Fettman 1984).

Third, we may cite evidence from evolutionary theory. The pain mechanisms seem to remain remarkably constant among at least the vertebrates. Here, as elsewhere, there is reason to believe that evolution preserves and perpetuates successful biological systems. If the mechanisms are the same, it would strain credibility to suggest that the experience of pain suddenly emerges at the level of humans. Not only is such a hypothesis *ad hoc*, it is not plausible. We know from cases among human beings that the ability to feel pain is essential to survival; people with a congenital inability to feel pain or with afflictions such as Hansen's disease are unlikely to do well or even survive without extraordinary heroic attention. (The same, of course, is true in animals—witness Dr. Taub's deafferented monkeys.) The *feeling* of pain and its motivational influence are essential to the survival value of the system—to suggest that the system is purely mechanical in animals but not in man is therefore highly implausible. If pain worked well as a purely mechanical system in animals without a subjective dimension, why would it suddenly appear in man? (Unless, of course, as my wife pointed out, one invokes some such theological notion as original sin and pain as divine punishment—hardly a legitimate scientific move!)

Fourth, when scientists express the view that we cannot legitimately make claims about animal pain because we can't directly experience it, they seem to forget that much science in fact presupposes animal pain. More importantly, they seem to forget that the actual practice of science, as opposed to its positivistic ideological rhetoric, has never really taken seriously the injunction that one must only deal with what is directly observable. If science did take this notion seriously, it could hardly concern itself with genes, quarks, and black holes, indeed all theoretical, non-observable entities. Animal subjective experience enjoys a similar status—it is postulated to explain observed behavior and physiological activity. As long as it continues to provide explanatory and predictive power, it seems legitimate and indeed necessary to admit its existence (Rollin 1985).

## Conclusions

If what we have been arguing is correct, it is not at all problematic—philosophically or scientifically—to attribute pain and other mental states to animals. Granted that we are always in danger of excessive anthropomorphism when we do so, but it surely doesn't follow that just because an idea can be abused, it shouldn't be used at all. (If we followed that dictum, we'd have no ideas at all!) We have good scientific and philosophical reasons to postulate animal pain and other modes of awareness; indeed we must do so in order to even do such a thing as pain research. Furthermore, this postulation is not mere speculation; it generates all sorts of research which regularly puts the hypothesis to test. In addition, it explains what animals do and how they behave, and is consistent with the evolutionary theoretical approach upon which modern biology rests, as well as with common sense and ordinary practice. (D.O. Hebb (1946) has shown that zookeepers are unable to do their job if they are not allowed to apply mentalistic terms to animals in describing their states and behavior.) How many of us could deal with the family dog if we weren't allowed to say things like "He wants to play"; "He is afraid of sirens"; "He doesn't like the taste of dry dog food"?

Given everything we have said, why has the scientific community, and more particularly, the veterinary community, been so cavalier about animal pain? I say cavalier, for example, because of the rarity in which analgesics are used either in research or in veterinary practice. This point has been made forcefully in the only contribution to the aforementioned American Physiological Society volume on animal pain which displays any concern with the moral and conceptual aspects of such pain. In his paper, Professor Davis (1983) remarks that:

One of the psychological curiosities of therapeutic decision-making is the withholding of analgesic drugs, because the clinician is not absolutely certain that the animal is experiencing pain. Yet the same individual will administer antibiotics without documenting the presence of a bacterial infection.

The answer has less to do with science than with philosophy. Until recently, little value has been put on concern for animal pain in research and in scientific and veterinary education. Common sense questions of the form “surely that hurts the animal” were countered with ideological pronouncements about animals not feeling pain, animals not really in pain, animals feeling only momentary pain, or our inability even to address this notion. (At a recent scientific meeting, one speaker spoke derisively of the attempt by the Wisconsin Primate Center to develop a scale of invasiveness of procedures using animals—as if it were as scientifically absurd as a scale of holiness.) These teachings were partially a matter of dogma concerning what science could know and more than partially a matter of convenience—it is much easier to do invasive things to animals if one believes they aren’t being hurt. I once had some students come to me to tell me that their instructor, a wildlife biologist, has taught them that fish did not feel pain. In response to my query, he told me that of course one couldn’t know one way or the other, and that while insofar as one could tell, all evidence indicated that they could feel pain, it made his job infinitely easier if the students didn’t *worry* about animal pain.

In general, either out of considerations of ideology, convenience, or emotional self-defense, animal pain and its control are not dealt with a great deal in science. I recall asking a medical researcher why so few federally funded projects wrote in provisions for laboratory animal analgesia, even when such use would not compromise the data. Up jumped a friend of mine, the chief of veterinary surgery at this institution; “Oh,” he said, “that’s because the use of analgesia isn’t standard veterinary prac . . .” His hand flew to his mouth and he turned pale as he realized what he had said. “Oh my God,” he went on, “I’ve been doing major surgeries like thoracotomies for twenty-five years, and it never dawned on me that these animals surely experience post-surgical pain.”

Fundamentally, the basic reason that the scientific community has been so cavalier about animal pain is the fact that animals enjoy no socially sanctioned or legally codified moral status. People—even ordinary people who don’t doubt that animals think and feel—are not used to thinking of animals in “the moral tone of voice.” (Human pain has at various times and places been similarly ignored in medical research in the case of human groups with no real moral status—women, slaves, blacks, indigents, convicts, political prisoners, etc.) Animals are generally seen as tools, and cheap ones at that, which should be kept in decent

repair (i.e., fed and watered), but beyond that, need no great concern. (Ironically, this has compromised a great deal of research by leading to a failure on the part of the researchers to think about, reckon with, and control stress variables which have enormous effects on physiological parameters—witness Gärtner's (1980) work with simply moving rats in a cage a distance of three feet and thereby markedly affecting a variety of plasma variables in a manner indicating microcirculatory shock reactions.)

But science can no longer afford the luxury of ignoring the moral status of animals and not dealing with animal pain. For society as a whole, in the last decade, has begun to change its *gestalt* on animals, and ever-increasingly sees animals as objects of moral concern. Ever-increasing ferment in Britain, Europe, and the U.S. provides evidence for the claim that animal welfare issues may well be “the Vietnam of the 80s.” For an ever-increasing number of people, how we treat animals needs to be assessed by moral criteria, not merely by criteria of efficiency and convenience. And, clearly, the very first question which needs to be addressed by anyone looking at animals morally is whether they are suffering any pain at our hands which could be eliminated, avoided, or mitigated.

In today's society, such traditional practices as multiple survival surgery, uncontrolled post-operative pain, and housing which makes no allowance for animals' social and behavioral needs, are no longer considered acceptable. And common sense, tempered with moral concern for animals, will have no patience with the old notion that animals do not feel pain, or that we cannot know that they do. A continued failure on the part of science to address moral issues concerning laboratory animals will not be tolerated. And thus, the inconsistent, self-serving, ideology of science which defines animal pain out of existence can no longer serve as a valuational basis for scientific activity. As anyone who has tried to get research funding knows, the idea that science is value-free is a myth; ignoring one's valuational presuppositions does not mean that they are not there.

The moment has come for science to reassess its valuational presuppositions regarding the moral status of animals, and their use. This is not merely a moral requirement, and a scientific one, but necessary to the very survival of science in the current social milieu. While this is certainly a challenge, it need not be viewed as a threat. If such reassessment is rationally accomplished, everyone concerned will benefit. The public will feel secure that full moral concern has been extended to animals; animals will no longer suffer useless, needless, controllable pain; science will inevitably benefit from greater attention to pain and stress variables, and scientists will no longer have to entertain a double standard; officially denying the reality and significance of animal pain as part of the ideology of science, while presupposing it in their work and

acknowledging it in their daily interactions with family pets. As I have argued elsewhere, science is inseparable from value questions, including moral ones, and the question of animal pain is inescapably as much a moral question as a scientific one.

One final note: The day I finished this paper a recent neuroscience textbook crossed my desk. The first sentence of the chapter on pain perhaps betokens a change in scientific attitudes on this issue. The author writes that “pain is a primitive, protective *experience* (not mechanism, emphasis mine,) which we share with all living organisms” (Kelly 1982). I take this as a positive sign that for whatever reason, perhaps the sorts of social concerns we discussed, scientists are beginning to soften their attitudes, both on whether animals experience pain and on whether we can know this, and perhaps the next generation of scientists will take this for granted. It is also noteworthy that there is no argument in this chapter for the quoted claim; perhaps, given the current moral climate on animals, scientists will go from a “Well, we can’t really know if animals feel pain, so let’s assume that they don’t” attitude to “Well, even if we can’t know, let’s give them the benefit of the doubt” stance, a position I have in fact seen articulated in science journals (cf the *Laboratory Animals* article mentioned earlier and Davis’ article). This is unfortunate, for only when good philosophical arguments on this issue have driven out bad ones can we feel confident that science will not slip back to either denying or ignoring the pain of animals.

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