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Bernard E. Rollin

Colorado State University

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Recognition of Distress in Animals – A Philosophical Prolegomenon

Bernard Rollin, Colorado State University, USA

Back in the early 1970s, there was a popular riddle entitled “The Boy with Two Fathers”. The content was as follows:

A boy and his father are in a terrible car accident and are rushed to an emergency room. The trauma surgeon takes one look at the boy and says “Oh my God! I cannot work on this boy—he is my son!”

How is this possible? I remember hearing this for the first time and sitting around doing some heavy and outlandish thinking. “One father is adoptive, the second biological.” “One father is a sperm donor...” etc. The simple answer, of course, is that the surgeon is the boy’s mother! In the 70s, I never came up with the right answer on my own; neither did any of my male or female friends. If one tries this riddle on today’s students, they get the answer immediately and won’t even see it as a conundrum. All are imbued with a world-view countenancing female surgeons—we were not.

Since Kant, we have come to realize that we are not mere dart boards on which perceptions impinge; that we as knowers contribute significantly to what we know—that we need a conceptual framework to order, organize and categorize the rapidly changing data provided by our senses. To take a simple example: To a lay person, a radiograph is a morass of black, white, and gray; to the radiologist the fracture or tumor is patent. Separating figure from ground requires filtering of what William James called the “buzzing, blooming confusion” of sensory data. In other words, we perceive not only with our eyes, but with our theories, beliefs, and expectations.

There are numerous illustrations of this point even in science, the most patent probably being the Rosenthal effect, wherein David Rosenthal demonstrated elegantly how expectations affect data (Rosenthal, 1966). In one experiment, he told a group of psychology graduate students that they were researching learning differences between two groups of rats; standard Sprague-Dawley white rats and a special strain of rats bred for higher intelligence. Consistently, the students found that the smart rats did better in learning trials. The only problem was, there were in fact no smart rats; the allegedly high IQ rats were in fact standard Sprague-Dawley rats, genetically and phenotypically indistinguishable from the “ordinary” rats!

This phenomenon can easily be demonstrated in a parlor trick: Ask an individual or a group to provide you with synonyms for a word or phrase you utter:

“If I tell you a funny story, I tell you a ___?” “Joke” they will reply.

“If you join me outside for a cigarette, we will ___?” “Smoke.”

“If I buy you a cola beverage in a red can, I buy you a ___?” “Coke.”

“If I lose all my money gambling in Las Vegas, I go home ___?” “Broke.”

“If my clothes get dirty working on my car, I put them in a basin to ___?” “Soak.”

“Another world for the white of an egg is ___?” Invariably people will say “Yolk.”

All of these examples illustrate the point that we perceive with our expectations, beliefs, theories. In most of the examples given, one can readily see this operative, and one is unlikely to be fooled the same way again, though one can see how one was fooled. The case of the radiograph illustrates the role of education in perception—once one has become adept at

reading radiographs, it is very difficult to readopt the naïve stand of simply seeing shades of gray, rather than bones and organs.

Sometimes a set of beliefs becomes so thoroughly ingrained that they completely govern your perceptions, and cannot be reversed by new data, because they determine what *counts* as data. When one is in such a state, what counts as relevant data casting doubt on such beliefs is rejected or filtered out, though to other people outside of the belief system in question, the data is highly relevant to establishing its falsity or casting doubts upon it. In some cases the hold of the belief system is so powerful as to defy even basic principles of logic as well as empirical disconfirmation.

The paradigm case of such a belief system is course religious beliefs. Highly intelligent people will entertain beliefs that are at loggerheads with reason – The Trinity for example: One can eloquently point out that three persons cannot logically be one person, without even beginning to shake even a religious logician's belief in its coherence. In the same way, as Hume vividly pointed out, a vivid catalogue of both human and natural evil does not shake religions' belief in both God's omnipotence and God's benevolence, though logically it should. At most, such a demonstration may elicit, as it did from Tertullian, "*Credo qui absurdum*" – "I believe because it is absurd". A more dramatic example can be found in those Jews who knowingly went to their deaths at the hands of the Nazis singing "*Ani ma'amin*" – "I believe".

A different set of beliefs that function in the same way can be found in various forms of racism. To a "died in the wool" racist nothing counts as evidence against the claim that black people are "stupid, inferior, and lazy". Showing the racist a patent counter example of a successful, industrious, intelligent black person does not touch the belief though in some people it may evoke an ad hoc explanation, such as "That person grew up around white people." This helps explain how Nazi's could kill, beat and starve helpless women and children who to the rest of us were paradigm cases of innocence. Robert Jay Lifton has shown how long-held beliefs that Jews, or the sick, or other outcasts were to the body politic what pathogens were to the individual body, allowed physicians to kill children and adults who were defective or retarded without feeling any friction with their moral beliefs as human beings or as physicians or nurses (Lifton, 1986). That such lives were "unworthy of being lived" provided the stage on which their otherwise moral professional lives were played out. Similarly, Daniel Goldhagen has shown in detail how auxiliary policemen were enlisted to voluntarily kill such Jewish and gypsy "inferiors" even when given the choice of going home without punishment. In some cases, killers boasted of their activities to loved ones at home in letters! What is critical is that these people were "regular, decent folks", not the sadists and psychopaths peopling the ranks of the SS or SA.

Such belief systems are of course epidemic in political theories, which explains how devout communists in the 1930's could be unshaken by revelations of indubitable atrocities perpetrated by Stalin in the Soviet Union. As late as the 1970's, a Stalinist Colleague of mine responded with irritation to the claim that Stalin killed 50 million people. "It was no more than 20 million", he snapped peevishly.

Such belief systems, refractory to attacks on their logic and heedless of empirical data which should cast doubt on their postulates, we may call ideologies. Full blown ideologies are characterized by an ability to filter out recalcitrant data; to ignore logical difficulties; and to almost automatically reject common sense and common decency. Also built into them is an abhorrence of examining their own assumptions, and thus a correlative hostility towards and loathing for philosophy, which has as its reason d'etre the questioning of fundamental assumptions. Thus, ideologies cannot be *refuted*, they must be *overthrown* or *overwhelmed*!

II

Beginning in the late nineteenth century, but actually rooted in much earlier scientific thought (e.g. Newton's famous dictum "I do not feign hypotheses"), the scientific community developed a view of science that rapidly hardened into Scientific Ideology, or, as I have called it, the Common Sense of Science, for it was to science and scientists what common sense was to ordinary people in ordinary life. This view was based on the desire to draw a clear line of demarcation between science and non-science, and to exclude from science notions like *life force* (Ølan vital), entelechies, absolute space and time, ether, that had illegitimately become adopted in biology and physics.

The key to this ideology was that nothing could be admitted into science that was not subject to empirical verification and falsification. Testability (verifiability and falsifiability) became the *sine qua non* for what could legitimately be considered part of science. This was meant to exclude speculative, mystical notions from the domain of science, but soon was far more widely applied, and used to exclude value judgments in general from science and ethical judgments in particular, since they could not be tested. (Wittgenstein once remarked that if you take an inventory of all the *facts* in the universe, you won't find it a fact that killing is wrong.) The slogan for much of the twentieth century was that "science is value-free."

The second mischievous implication of restricting the scientific to the observable was the declaration that science could not deal with mental states, which are inherently subjective in both humans and animals, and what is inherently subjective is not testable. One wit, commenting on the history of psychology, quipped that, after losing its soul, psychology proceeded to lose its mind. What is particularly perplexing about this second component of scientific ideology was that it was radically incompatible with Darwinism, the regnant paradigm in biological science.

It was axiomatic to Darwin that if physiological, morphological and metabolic traits were phylogenetically continuous, so too were mental and psychological ones. Darwin believed this to be true not only of cognition but also of emotion. One of his all but forgotten books details his experiments on the problem solving ability (=intelligence) of earthworms (Darwin, 1886) and the very title of his classic work, "*The Expression of the Emotions in Man and Animals*" (Darwin, 1872), underscores his view of continuity of mentation. Darwin's secretary, George Romanes, was entrusted by Darwin with much of the writing on animal mentation, and he produced two brilliant but almost forgotten tomes on this subject, entitled "*Animal Intelligence*" (1898), and "*Mental Evolution in Animals*" (Romanes, 1884).

Romanes reasoned that though controlled experimentation could provide some knowledge of animal behavior and thought, the vast majority of such knowledge would properly come from anecdotes recounting observations of animal behavior under natural conditions. Acutely conscious of the fact that anecdotal information can be extremely unreliable, Romanes devised a method for critically sifting or, in his words, "filtering" anecdotes:

First, never accept an alleged fact without the authority of some name. Second, in the case of the name being unknown, and the alleged fact of sufficient importance to be entertained, carefully to consider whether, from the circumstances of the case as recorded, there was any considerable opportunity for malobservation; this principle generally demanded that the alleged fact, or action on the part of the animal should be of a particularly marked and unmistakable

kind, looking to the end which the action is said to have accomplished. Third, to tabulate all important observations recorded by unknown observers, with the view of ascertaining whether they have ever been corroborated by similar or analogous observations made by other and independent observers. This principle I have found to be of great use in guiding my selection of instances, for where statements of fact which present nothing intrinsically improbable are found to be unconsciously confirmed by different observers, they have as good a right to be deemed trustworthy as statements which stand on the single authority of a known observer, and I have found the former to be at least as abundant as the latter. Moreover, by getting into the habit of always seeking for corroborative cases, I have frequently been able to substantiate the assertions of known observers by those of other observers as well or better known (Romanes, 1884).

Though part of scientific ideology is having healthy contempt for anecdote, I do not share this view, and see Romanes' method as perfectly compatible with the common sense we use in daily life. After all, consider our knowledge of human behavior: How much of this knowledge is derived from laboratory experimentation – virtually none! Virtually all of it – with the exception of a few social-psychological insights such as those provided by Milgrim's work on obedience, or Zimbardo's work on simulating guards and prisoners – comes from interaction with other people in daily life. The same is true of our knowledge of animal behavior. For example, though the cat is one of the most studied animals in 20th century physiological psychology, all that has been learned has to do with cats under unusual circumstances -- brain lesioning, deprivation, etc. None of this work produced a single book on normal cat behavior!

In 1985, Griffiths and Morton produced a classic paper on recognizing pain in animals, in response to researchers complaining about new laws mandating the control of pain – these researchers expressed ideology-based agnosticism at knowing how to identify pain in animals (Morton and Griffiths, 1985). Griffiths and Morton gave two responses: first of all, they provided a calculus for evaluating pain – 2 points for the animals not eating – 4 points for vocalizing, etc. Second, they essentially said that if a scientist is in doubt about animal pain, he or she should ask an animal caretaker, ranch manager, technician; in short those who live with the animals! The second approach was the one they considered most accurate. Those who live with animals must know their mental states to survive. In the 1940's psychologist David Hebb reported that zookeepers said they could not do their jobs if they were not permitted to use mentalistic locutions about their charges (Hebb, 1946). My own animal science students some years ago were taking an animal behavior course from a person agnostic about animal consciousness. Most of them were ranch kids, having grown up with animals, and, having addressed almost 30,000 ranchers in my career, I know that no ranchers doubt that animals are conscious. I asked them how they dealt with the professor's agnosticism about animal awareness. "Oh, we give him back what he preaches on tests", they said. "But we forget all that crap when we go back to the ranch. If I can't say 'the bull is in a mean mood today'; I won't live long!"

In a paper I delivered as a keynote speech to the International Society for Applied Animal Behavior (Rollin, 2000), I argued that the rejection of anecdote (and anthropomorphism) as a source of information about animal consciousness was misguided. After all, every report of scientific experiment is itself an anecdote, and the scientists reporting it has a strong vested interest in its being accepted! With all we know now of data falsification and "publish or perish" pressure, why consider the scientist a more credible source of knowledge than the disinterested lay observer, corroborated across time and space by others?

In any event, to return to the main thread of our discussion, the denial of consciousness was directly incompatible with classical Darwinism but that did not bother either Behaviorist

psychologists (who dominated psychology in Britain and the U.S.), or Ethologists (who dominated Europe). Positivism eclipsed Darwinism. When Ethologists met with Behaviorists for the first time in 1948, as chronicled in the volume *"Instinctive Behavior"* (Schiller, 1957), they agreed on virtually nothing except the unknowability of animal consciousness.

Since Behaviorism dominated U.S. animal psychology for much of the twentieth century, it is worth briefly mentioning how it came to trump Darwinism. J.B. Watson almost single-handedly accomplished this feat, though he was originally a believer that psychology should study consciousness, even complaining in an early book review that the book did not talk enough about consciousness. Later in his life, however, he argued that if psychology is to achieve the status of other sciences, it in essence needed to stop dealing with the subjective and consider only observed learned behavior, which to him assured objectivity. Furthermore, from an objective psychology could and would come practical applications, a behavioral technology, as it were, which would allow society to create ideal educational institutions, rehabilitate criminals, cure psychological and anti-social aberrations. (This project was carried on by B.F. Skinner). Furthermore, Watson had been a founder of modern advertising psychology, had succeeded in the industry, and sold Behaviorism through the mass media, while most other scientists shunned (and still shun) the press.

In any event, Behaviorism denied that mentation in humans or animals could be studied, with Watson at one point coming close to affirming that "we don't have thoughts, we only think we do." So dominant was Behaviorism that it occasioned a marvelous speech by Gordon Allport in the late 1930's, when he was president of the American Psychological Association.

"So it comes about that after the initial take-off we, as psychological investigators, are permanently barred from the benefit and counsel of our ordinary perceptions, feelings, judgments, and intuitions. We are allowed to appeal to them neither for our method nor for our validations. So far as method is concerned, we are told that, because the subject is able to make his discriminations only after the alleged experience has departed, any inference of a subjectively unified experience on his part is both anachronistic and unnecessary. If the subject protests that it is evident to him that he had a rich and vivid experience that was not fully represented in his overt discriminations, he is firmly assured that what is vividly self-evident to him is no longer of interest to the scientific psychologist. It has been decided, to quote Boring, that "in any useful meaning of the term existence, private experience does not exist." (Allport, 1939)

And, commenting on the idea that all human psychology could be modeled in rat learning (i.e. conditioning), Allport produced this gem:

"A colleague, a good friend of mine, recently challenged me to name a single psychological problem not referable to rats for its solution. Considerably startled, I murmured something, I think, about the psychology of reading disability. But to my mind came flooding the historic problems of the aesthetic, humorous, religious, and cultural behavior of men. I thought how men build clavichords and cathedrals, how they write books, and how they laugh uproariously at Mickey Mouse; how they plan their lives five, ten or twenty years ahead; how, by an elaborate metaphysic of their own contrivance, they deny the utility of their own experience, including the utility of the metaphysic that led them to this denial. I thought of poetry and puns, of propaganda and revolution, of stock markets and suicide, and of man's despairing hope for peace. I thought, too, of the elementary

fact that human problem-solving, unlike that of the rat, is saturated through and through with verbal function, so that we have no way of knowing whether the delay, the volition, the symbolizing and categorizing typical of human learning are even faintly adumbrated by findings in animal learning” (Allport, 1939).

In short Behaviorism combined with Positivism to produce the two components of Scientific Ideology we have discussed. In today’s world, where concern for animal treatment is a major social issue across the western world, the general public would never have permitted the denial of mentation. However, during the period from roughly 1920 to about 1970, society did not manifest such concern, so ethics did not choke ideology and scientific denial of animal consciousness (indeed human consciousness) endured.

III

It should be noted that although one cannot produce a “Bible” of scientific ideology, the value-free aspect (Mader, 1987) was literally written in the introductions to biology text-books at least into the 1990’s. (Keeton, and Gould, 1986) Indeed, this view was omnipresent in science. All students were taught that science did not make ethical judgments. Science courses did not engage ethical issues occasioned by the sciences, nor did scientific conferences nor did science journals. Even when society was highly critical of animal use in research, the scientific/medical community responded by trotting out sick people, threatening not to cure children, and generally responding every bit as emotionally as their anti-vivisectionist critics, since to Positivism ethical judgments *are* nothing but emotional predilections mistakenly put in propositional form. I have argued that the major reason for societal rejection of biotechnology is the failure of the scientific community to articulate the ethical issues emerging from genetic engineering and cloning. The resulting lacuna in social thought is then filled by doomsayers (like Jeremy Rifkin) or theologians. George Gaskell of the London School of Economics demonstrated through survey data that Europeans reject biotechnology not, as common scientific wisdom suggests, out of *fear*, but on moral grounds. (Gaskell, 1997)

This is well-illustrated in the story of Dolly, the cloned sheep. When the scientists failed to articulate any ethical issues associated with cloning, the public raised its own issues. Within a week of the announcement, a “*Time*” magazine survey showed that fully 75% of the general public saw cloning as “*violating God’s will!*” (CNN/Time Poll, 1996)

In one of the most extraordinary incidents bespeaking the pervasiveness of this ideology, James Wyngaarden, then head of NIH and arguably in that role the chief spokesman for the biomedical research establishment, affirmed at his alma mater, Michigan State University, that “although scientific advances like genetic engineering are always controversial, science should never be hindered by ethical considerations.” (Michigan State News, 1989) Tellingly, when I read this statement to my students and ask them to guess its source, they say “Hitler”.

Indeed, I would argue that few things have hurt science as badly as removing itself from ethical issues. In addition to hurting biotechnology, science’s failure to truly engage the ethical issues in animal research almost led to severe legislative curtailment of biomedical funding. Failure of the scientific community to engage the issue of research on humans morally has led to Draconian federal regulations in that area. And the lack of moral thinking and training has led to the proliferation of fraud and deception in science. (After all, if science has nothing to do with ethics, why not falsify data!)

Animal research is largely done with public money (though the percentage funded privately by drug companies, biotech companies etc. is increasing). In that case, it is necessary to have public support for research. Much of that public support depends on public perception that animal research is very conscious of its ethical dimensions. Indeed, it was researchers' actions and statements evidencing lack of ethical awareness that led to the crises of confidence in animal research in the late 1970's and early to mid-1980's. This lack of confidence in turn led to the federal passage of the 1985 laws written by my colleagues and myself over a decade to instill moral concern into science, erode scientific ideology, and assure proper animal treatment. We shall shortly discuss these laws and the fine job they have done to restore public confidence in animal research by eroding scientific ideology.

Just as we have discussed the way in which the belief that science is value-free inherent in scientific ideology alienated animal research from public morality and public moral concern for animals, the denial of the knowability of (if not existence of) animal subjective experiences further alienated the scientific community from society in general, who intrinsically always believed in animal consciousness, and who, beginning in the 1970's, generated ever-increasing moral concern for animal treatment. Thus, possible ethical concern among scientists was forestalled from overturning agnosticism about awareness.

For younger people trained before the late 1980's, it is difficult to fathom the degree to which the denial of consciousness, particularly animal consciousness, was ubiquitous in science. In 1973, the first U.S. textbook of veterinary anesthesia was published, Lumb and Jones (Lumb and Jones, 1973). Although the book gave numerous reasons for anesthesia (to keep the animal from hurting you; to keep it from injuring itself; to allow you to position the limbs for surgery) the control of felt pain was never even mentioned. When I went before Congress in 1982 to defend our laboratory animal legislation, I was advised to demonstrate that such laws were needed. To accomplish this goal, I did a literature search on laboratory animal analgesia and, *mirabile dictu*, found only one or two references, one of which argued that there *should be* such knowledge!

In 1983, the crescendo of concern among the public about animal pain was so great that the scientific community felt compelled to reassure the public that animal pain was indeed an object of study and concern, so they orchestrated a conference on pain and later published a volume entitled "*Animal Pain: Perception and Alleviation*" (Kitchell and Erickson, 1983). Despite the putative purpose of the volume, virtually none of the book was devoted to perception or alleviation of felt pain. As a result of scientific ideology, pain was confused with nociception, so that the volume focused on the neurophysiology and electrochemistry of pain, what I at the time called the "plumbing of pain", rather than the morally relevant component of pain, namely that it *hurts*.

Most surprising to members of the general public is the fact that veterinarians were as ignorant and skeptical about animal consciousness, even animal pain, as any scientist. To this day, and certainly in the 1980's, veterinarians called anesthesia "chemical restraint" or "sedation" and performed many procedures, e.g. horse castration, using physical restraint, what was jocularly called "bruticaine," or using paralytic drugs like succinyl choline chloride, which is a curariform drug inducing flaccid paralysis, not anesthesia. Indeed, one veterinary surgeon told me that, until he taught with me, it never dawned on him that the horse being castrated under succinyl hurt!

This sort of absurdity also occurred in physiological psychology. I have already mentioned the psychological community's rejection of animal consciousness. Yet the same community

regularly performed stereotaxic brain surgery and brain stimulation using succinyl choline without anesthesia, because the psychologists wanted the animals “conscious”.

That ideology could triumph logic and even reason was manifest in this area. In the late 1970’s, I debated a prominent pain physiologist. His talk expounded the thesis that since the electrochemical activity in the cerebral cortex of the dog (his research model for studying pain) was different from such activity in the human, and since the cortex was the seat of processing information, the dog did not (really) feel pain the way humans did. His talk took an hour, and I was expected to rebut his argument. My rebuttal was the shortest public statement I ever made. I said, “As a prominent pain physiologist, you do your work on dogs. You extrapolate the results to people, correct?” “Yes,” he said. “Excellent”, I said. “Then either your speech is false or your life’s work is!”

In a similar vein, I experienced the following incident. In the mid 1980’s, I was having dinner with a group of senior veterinary scientists, and the conversation turned to the subject of this paper: namely, scientific ideology’s disavowal of our ability to talk meaningfully about animal consciousness, thought, and awareness. One man, a famous dairy scientist, became quite heated. “It’s absurd to deny animal consciousness,” he exclaimed loudly. “My dog thinks, makes decisions and plans, etc., etc.” All of which he proceeded to exemplify with the kind of anecdotes we all invoke in such common-sense discussions. When he finally stopped, I turned to him and asked. “How about your dairy cows?” “Beg pardon?” he said. “Your dairy cows,” I repeated; “do they have conscious awareness and thought?” “Of course not,” he snapped, then proceeded to redden as he realized the clash between ideology and common sense, and what a strange universe this would be if the only conscious beings were humans and dogs, perhaps humans and *his* dog.

A colleague of mine who was doing her PhD in the mid-1980’s in anesthesiology was studying anesthesia in horses. The project involved subjecting the animal to painful stimuli and seeing which drugs best controlled the pain response. When she wrote up her results, her committee did not allow her to say that she hurt the animals, nor could she say that the drugs controlled the pain – that was ideologically forbidden. She was compelled to say that she subjected them to a stimulus and to describe how the drugs changed the response.

One of the best stories covering the ideological denial of consciousness was told by Dr. Robert Rissler, the USDA/APHIS veterinarian in charge of writing the regulations interpreting the 1985 laboratory animal laws (Personal Communication, 1987). Rissler related that he was particularly worried about one provision of the law, namely the requirement that non-human primates be housed in environments that “enhanced their psychological well-being”. As a veterinarian, Rissler said, he knew nothing about either primates or psychological well-being. It occurred to him to approach the primatology division of the American Psychological Association. He made an appointment, and tendered his queries to some eminent scientists in the field. “Psychological well-being of primates,” they said. “Don’t worry Dr. Rissler, there is no such thing. Rissler’s reply was immortal: “Well there will be after January 1, 1987 (the date the law took effect), whether you people help me or not!”

IV

How, then, has this ideology been overturned to the point that one doing a literature search on animal pain and analgesia today would find thousands of papers? Though I had engaged proponents of that ideology in argument beginning in the mid 1970s, I had gotten nowhere. I came to realize that people could not be argued out of scientific ideology anymore than they

could be argued out of religious or political ideology. The answer is bipartite. First of all, in the past 30 years society has grown increasingly morally concerned about animal treatment and by the mid 1980s was no longer content to let science “do its thing.” The pressure of social moral concern about animal pain and suffering in research would no longer allow scientists to ignore that pain and suffering, much less to deny its existence. Secondly, this moral concern no longer let scientists get away with claims that they needed laissez faire in animal research to cure diseases—a film made by the research community in opposition to legislation baldly affirmed that proposed legislation would “stop them from curing children,” a claim society thoroughly disbelieved!

This moral concern made legislation inevitable. Our legislation in turn powerfully undercut scientific ideology. When my colleagues and I drafted these laws beginning in the 1970’s, besides protecting laboratory animals and science, our agenda was to displace scientific ideology as an impediment to scientists thinking about animals in ethical terms and recognizing animal awareness. By mandating “ethical review” of animal projects by local committees of peers, community members, and non-scientists, we hoped to restore ethical thinking about animal use to scientists, and undercut the “science is value-free” ideology. Having sat on such a committee since 1980, and having consulted for the committees of many institutions, I can attest to the fact that they have in fact successfully undercut scientific ideology, since it is after all common-sensical to see laboratory animal use as morally problematic and animals as conscious, feeling beings. These committees and laws then, help scientists to “reappropriate common sense”. (I have discussed the mechanism by which this occurs in detail in a recent paper.) (Rollin, 2002)

As important as ethical discussion was as a dimension of these laws, aimed at undercutting scientific ideology, equally important was the way in which they solved the denial of consciousness and feeling in animals. Quite simply, the law mandated that animals experienced pain and distress, and required their control! Furthermore, it recognized psychological well-being and environmental enrichment by requiring “exercise for dogs” and living environments for primates that “enhanced their psychological well-being”, though Congress refused our suggestion of requiring enriched living environments for all laboratory animals. (NIH has, however, pressed the research community in that direction in the NIH *Guide*.)

The results have been stellar, particularly in the area of animal pain. From the paltry couple of articles I found in 1982, the literature on animal pain and pain control has exploded to thousands of articles, and the use of pain control has become second nature in research institutions. As an added bonus, since veterinary school faculty are usually veterinary researchers and teachers, the message and knowledge was transmitted to veterinary students who in turn, like the rest of society, were becoming very concerned about animal welfare and who, as graduates, in turn brought the knowledge to their employers many if not most of whom has been trained in agnosticism about pain. This in turn was further encouraged as drug companies, notably Pfizer, entered the market with very successful analgesics for dogs – carprofen in the case of Pfizer.

A vivid illustration of the power of the laws to change gestalts can be found in the following anecdote: In 1981, I appeared at an AAALAS meeting to discuss the possibility of federal legislation for laboratory animals. To point the issue, I asked the group of laboratory animal veterinarians on the panel with me what analgesic each of them would use on a rat in a crush experiment. None could respond, and some said they couldn’t know an animal felt pain! When the laws passed, I phoned one of the agnostic veterinarians with whom I was friendly and repeated the question. He, in turn, rattled off four or five analgesic regimens. “What happened?”

I queried. "In 1981 you were agnostic about pain. Now you have five regimens. What changed?" "Oh", he said, "when pain control was required, we went to the drug companies." "What do you mean", I asked. "Simple", he said. All human analgesics are tested on rats." In other words, though he knew all this in 1981, he didn't see it as relevant to controlling pain in rats until forced to change his gestalt by the laws! To take another example. In 1987, I served on the AVMA Pain Panel, charged by Congress with explaining pain to skeptical researchers, with the law affirming that if a procedure hurt us, it should be presumed to hurt animals as well. This constituted the ground rules for the panel. Almost immediately, people on the panel began to say that if animals can model human pain in research, it logically followed that human pain could model animal pain! The law passed a return to common sense and logic hitherto eclipsed by ideology!

Though often accused of "foot-dragging", the USDA/APHIS, the agency charged with enforcing and interpreting the Animal Welfare Act, behaved very wisely with regard to pain and distress. Although the laws passed in 1985 and went into effect in 1986, the USDA did not even begin to discuss distress until about 2000. By then, ideologically-based opposition to talking about pain had been eclipsed by the flood of research and activity in the area, and the general awareness that uncontrolled pain was biologically devastating and skewed results. Clearly, the same holds true of fear, boredom, loneliness, anxiety; all of which we have every reason to believe obtain in animals. And, equally important, social ethics ever-increasingly demands control of all modes of animal suffering occasioned at human hands.

In short, Federal law, particularly when tied to research funding, was a powerful enough goad to dethrone scientific ideology and liberate thinking constrained by ideology. When Federal law says animals feel pain, and that ignoring that pain was unacceptable, scientists could begin rejecting scientific ideology and even to see its irrationality.

V

The identification of other modes of animal misery follows precisely the same logic inherent in the revolution about pain. Suddenly, the blinders are off, and we can realize that boredom, fear, loneliness, and all other noxious states in animals are part of ordinary common sense's way of looking at the world, and that both ordinary common sense and Darwinian biology militate in favor of such mental states being phylogenetically continuous. This is not to say that ordinary common sense is always right about what it imputes to animal mentation; it does suffer from exaggerated anthropomorphism and gullibility in imputing such states to other creatures. But the *conceptual* impediments to such imputation have indeed been removed, and this has opened the door to the sort of splendid and careful scientific study of noxious mental experiences in animals pioneered by Marian Dawkins and Ian Duncan.

A recent editorial in *Nature* affirmed, in essence, that the scientific community now *must* study animal consciousness, in a world where social moral concern for animals is indelibly established:

"Whether or not animals have "rights", we should learn more about their capacity for suffering. In Germany, the right of freedom to research is enshrined in the nation's constitution. But that may soon have to be balanced against a new constitutional right of animals to be treated as fellow creatures, and sheltered from avoidable pain. Not surprisingly, biomedical researchers fear that their work will be mired in legal challenges.

The latest moves in Germany are the product of political circumstances. But attempts to give animal rights a legal foundation are quietly gathering momentum worldwide. Three years ago, New Zealand's parliament considered and ultimately rejected a plan to extend basic human rights to the great apes. And at a growing number of law schools in the United States, courses in animal law are popular.

Some commentators have already countered that "rights" are only created by beings capable of asserting themselves, therefore very young children, and animals, are properly accorded protection, not rights (see Nature 406, 675-676; 2000).

Nevertheless, most experts would agree that we have barely started to understand animal cognition. Even our knowledge of animal welfare is still rudimentary. We can measure levels of hormones that correlate with stress in people. But is a rat with high levels of corticosteroids suffering? We just don't know.

Given the passions raised by animal experimentation, and the importance of biomedical research to human health, the science of animal suffering and cognition should be given a higher priority. We owe it to ourselves, as much as to our fellow creatures, not simply to leave the lawyers to battle it out. (Nature, 2002)

For those who continue to doubt the studiability of distress or suffering or misery in all of its forms in animals, consider the following thought experiment: If the government were to come up with a billion dollars in research funding for animal distress, would that money go a-begging? We can study these states just as we studied pain—excellent work on boredom by Franciose Wemelsfelder in a volume on laboratory animal welfare I co-edited made the methodology for such study quite explicit. (Wemelsfelder, 1990) And when the ideological scales fall from our eyes, we realize that the work of scientists like John Mason (Mason, 1971), Seymour Levine (Levine, 1990) and even the odious work of Harlow do provide clear ingressions into animal unhappiness. Even more promising, it has recently become legitimate to talk of animal happiness, a notion I have argued elsewhere is in fact clearer than that of human happiness (Rollin, 2004).

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