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Editor's Forum

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Animals have been used throughout the history of biomedical research. There are early medical descriptions of dissection related to the quest for understanding of anatomy by detailed examination of animal and human corpses. Study of physiologic function utilizing living animals and isolated organ and tissue preparations (so called vivisection) became standard during the 19th and 20th centuries. Use of these methodologies as a basis for studying human disease; by mimicking it in varying factors such as temperature, blood pressure, infection, drug effects, immune suppression, etc. gained momentum over the past 50 years. Animal "models" of human illness became a cornerstone of science based investigations and treatments preceding application to humans.

Until recently these experiments predated a scientific environment in which notions of animal welfare, animal rights, and moral duties towards animals were merited discussion. The ethical correctness of these practices was considered beyond question within the biological - scientific community. Ethical justification was usually based on utilitarian arguments of human benefit morally outweighing animal suffering. Use of the whole animal or organ models for demonstrating physiology is something that most medical students encounter as part of medical education based on the biological science driven understanding of disease.

The prevailing ethos is that this animal based research is an essential component of both medical education and evidence based health care in a modern medical school - health science center.

The widespread acceptance of this opinion among health professionals and allied scientists suggests that biomedical research is clearly supported by high quality evidence of human benefit i.e., is an

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evidence based practice. Within these groups there is little or no questioning of the morality of this practice, of its utility, or of the validity of evidence supporting its use. It is only recently with adverse publicity around expansion of animal experimental methods into widespread drug and cosmetic based experiments that ethical concerns have been more widely expressed. These concerns almost exclusively originate from outside the medical - biological science community. However a recent editorial appeared in the British Medical Journal (BMJ), by Godlee entitled "How predictive and productive is animal research?". This was written as a commentary on a paper by Pound & Bracken in the BMJ entitled "Is animal research sufficiently evidence based to be a cornerstone of biomedical research?" That this subject was seriously questioned in a prestigious medical journal suggests a shift in the broader view of animal use in research as being beyond questioning. Of interest there was a large majority of negative e-comments relating to both the above papers in the rapid responses section of the BMJ.

The papers in this issue of *Health Ethics Today* present a very different view of this animal based research (AR) from the traditional one supported within biological science laboratories and health science centers. Ari Joffe presents a harsh critique of standard methods of animal use in AR. He goes far beyond the usual utilitarian arguments relating to relative animal risks and human benefits and suggests that in itself the entire undertaking is ethically unsound. He rejects the justifications presented by Research Ethics Boards and others pertaining to current ethical standards and regulations for care, treatment and handling of animals for AR. Despite squeamish qualms about AR, its justification usually rests on the assertion that it derives benefits for humans that otherwise cannot be obtained. In Part I Joffe seriously questions this assertion's validity and in Part II he argues that AR involves harming animals that is not morally justified.

Gary Frank's paper supports ancient beliefs in respecting the sacredness of life. He describes how this essentially human trait relates to virtue and to an emotional commitment to others, including non-human living things. He points out that despite many

rational arguments for and against animal use in experiments our moral concerns turn on an emotional connection to others. His views are in marked contrast to the widespread view that the moral standing of humans differs fundamentally from animals.

Brendan Leier's paper discusses the issue in terms of a "precipitating event" – a Q & A session resulting from a Dossetor Centre Health Ethics Seminar on AR (<http://www.bioethics.ualberta.ca/Health%20Ethics%20Seminars/~~/media/dossetor/HES/Winter2014/JoffeApril2014/Joffe30April2014poster.pdf>) and to the papers by Joffe and Frank. The adversarial nature of the Q & A session caused a great deal of subsequent reflection about this sensitive topic and the implications beyond it with respect to academic freedom and discussion. Leier sees the topic as encompassing the broad questions of the place of emotion in the moral world and of "anthropocentrism" as a justifiable moral view today. Depending on how one views the moral relationship of humans to the rest of nature will determine whether the thematic exploration undertaken by Leier resonates with or is repugnant to you our readers.

These papers in *Health Ethics Today* may be regarded as offensive by many scientists and physicians involved in animal based experiments relating to human disease. However the ethical basis of the arguments presented requires careful scrutiny and attention in keeping with a less narrow medical - science driven paternalistic world view of medicine and health. Today the professional role of physicians and the tools at their disposal in promoting health and treating illness are very different from the time when vivisection was initiated.

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How Do We Justify Biomedical Animal Research For Human Benefits? Part I.

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Animal research (AR) is often said a) to be essential to medical advancement, and b) morally permissible because of the great benefits from these medical discoveries. Both of these are assumptions that warrant careful consideration. Accordingly, I will discuss two important questions regarding AR. First, in Part I, is AR predictive of human response to drugs and disease? And second, in Part II, is there an ethical argument that AR is morally permissible?

I need to clarify what is meant by "AR" in this discussion (Garrett, 2012). Animal research refers to harmful, non-therapeutic, non-consensual research done on sentient non-human animals (especially mammals and birds). The procedures are harmful in that they are detrimental to some interest the animal has, such as the interest in maintaining life and bodily integrity, and avoiding pain and frustration. They are non-therapeutic in that the procedures do not aim at restoring the health of the research subject with prior injury/disease. And they are non-consensual in that the subjects have not voluntarily agreed to participate. In other words, the research would be judged unethical if done with any non-consenting human subjects, or if done to animals in a non-research setting.



Animal models (AM) in research are said to be "causal analogical models" (Greek & Rice, 2012; Shanks et al., 2009). This means that the AM is used to extrapolate findings to humans because of the following: the AM is similar to the human with respect to traits/properties a,b,c, (e.g., fever, hypotension, and kidney injury in sepsis), and when the AM is found to have property d (e.g., response to protein C as a treatment), it is inferred that the human also likely has property d. The problem is that this analogy assumes at least the following: there are few causal disanalogies between the AM and the human (i.e., there are no properties e,f,g that are unique to either the animal or human that interact causally with the common properties a,b,c), and there are few counter-analogies between the AM and the human (i.e., there are few examples where the AM has property d, and the human does not have property d). In this paper, I aim to address these two problems.

First, regarding *causal disanalogies*, it is important to consider "complexity", "complex systems", or "systems biology". Intact animal organisms are evolved complex systems; they have a myriad of interacting modules at hierarchical levels of organization. As a result of this complexity, they have emergent properties (e.g., animal traits and functions) that are dependent on initial conditions (e.g., gene expression profiles, the context of the organism). In other words, complexity science tells us that in complex systems (i.e., animals), very small differences in initial conditions (e.g., species and strain) can result in dramatic differences in response to the same perturbation (e.g., drug or treatment, Wagner, 1999; Mazzocchi, 2008). Thus, if the trait or response being studied in an animal is located at a higher level of

organization (e.g., a disease, drug response, or drug toxicity), then the response of one complex system to a perturbation will not predict the response of another complex system (Greek & Rice, 2012). The point here is this: AR assumes context independence—that there are not properties e,f,g (part of the “initial conditions”) that are unique to the AM and that causally interact with the common properties a,b,c. But complexity science tells us that this assumption is false. Later in this paper, we will see if there are these kinds of empirical differences in “initial conditions” between animals and humans.

Second, regarding *counter-analogies*, there are many. A common fallacy should be put to rest first. It is sometimes said that “if there is a medical advance, there was an AM”, implying that virtually all medical advances depended on AMs. There are several problems with this argument. Often, this is used to suggest that if there is no medical advance, there is no AM; however, this is the fallacy of denying the antecedent, and there are many instances of no medical advance despite a great many AMs. Also, this is used to suggest that if there is an AM, there will be a medical advance; however, this is the fallacy of affirming the consequent, and there are a great many AMs that have never led to a medical advance. More importantly, it is correct to deduce from the argument that if there is no AM, there will be no medical advance. This is often true; however, it is based on a tautology (it is self-fulfilling and circular): by law, since the 1930s, any medical advance must have been tested in an AM prior to use in humans. Thus, that an AM was used does not tell us anything about whether it contributed to the discovery or was necessary for the discovery. Moreover, the argument is false: there are many examples of medical advances that did not rely on AMs, including sanitation advances that led to rapidly falling mortality rates in populations, the discovery of smallpox vaccination, and the finding that tobacco causes cancer.

Animal research is used for prediction (Shanks et al., 2009). Prediction is a prospective ability, and should be accurate (measured using sensitivity, specificity, positive and negative predictive values). Prediction

does not include a retrospective look back for rare examples of concordance. In fact, given the large amount of AR conducted, it should be expected that some, retrospectively, “predicted” human responses; i.e., if you generate enough hypotheses, some might prove useful. However, it is very surprising to review what the empirical literature shows about prediction accuracy of AR.

Regarding the safety of drugs, including toxicology, teratology, and carcinogenicity, reviews have concluded that AR does not accurately predict human outcomes (Fourches et al., 2010; Hartung, 2009; Litchfield, 1962; Shanks et al., 2009). Concordance between human-rodent and human-nonrodent are in the range of 40-50%. These numbers mean that although there is some overlap between what will be toxic, or cause birth defects, or cause cancer in an AM and a human, there is so much non-overlap (inaccuracy) that: many bad drugs will be used in humans (false negatives- e.g., thalidomide, Vioxx, tobacco, and hormone replacement therapy), and many good drugs will be thrown away (false positives- e.g., in the past this would have included acetaminophen, ASA, prednisone, and penicillin).

Regarding the efficacy of drugs (response to treatment for a disease), translation of findings from AM to human has been remarkably low in fields that examine it. There seems to be a disconnect between the promise of basic science, and the delivery of better health. For example, in each of the following fields the translation rate has been from 0-5%: cancer, neurodegenerative diseases (e.g., multiple sclerosis, Alzheimer’s disease, Parkinson’s disease, Huntington’s chorea, amyotrophic lateral sclerosis), asthma, stroke (ischemic, intracranial hemorrhage, subarachnoid hemorrhage), traumatic brain injury, spinal cord injury, sepsis and shock, resuscitation, heart failure, and HIV vaccines. In fact, there have been well over 100 trials of promising therapies for stroke, with only one approved treatment (tPA); over 70 trials for sepsis, with none effective; and over 85 HIV vaccine trials, with none effective (references available from author). This includes interventions based on non-human primate AMs. There have been

reviews of the translation of AR findings to humans. For example, of 25,000 basic science publications, 1 (0.004%) led to the development of a clinically useful class of drugs (Contopoulos-Ioannidis et al., 2003). Of 76 studies that were published in the highest impact science journals with over 500 citations each, 8 (10.5%) led to an approved treatment (Hackam & Redelmeier, 2006). Of 6 interventions with systematic reviews of animal and human responses available, 2 showed benefit/harm, 2 benefit/no-benefit, and 2 benefit/benefit respectively (Perel et al., 2006). A systematic review of systematic reviews on the utility of AR findings to medical advances found that only 1 (5%) suggested the AR was useful (Knight, 2008). Finally, in the pharmaceutical drug and development literature it is found that, of drugs that advance from AMs to humans because of their great promise in AR, about 8% are successful (Pammolli et al., 2011). These numbers mean that AR usually mistakenly predicts efficacy in humans (false positives), resulting in opportunity costs (wasted research dollars) and sometimes harm to trial participants. In addition, an unknown number of treatments have likely been lost because they were ineffective in AMs (false negatives). For example, when the National Cancer Institute tested 12 effective-in-human cancer drugs, in 30/48 tests these drugs were ineffective in mice (Gura, 1997).

How can this be? Remember complexity science and the discussion of causal disanalogies. There is much data showing that there are causal disanalogies between animal species: differences in gene expression and disease susceptibility. Between species, there are many differences in gene expression in each organ, and in response to infections and disease. There are even differences in what are “essential genes” (those that, if missing, lead to death or infertility) between human and mouse, probably because there are differences in functions of orthologous genes. For example, recent studies have shown that in burn, trauma, and endotoxemia, “among genes changed significantly in humans, the murine orthologs are close to random in matching their human counterpart” (Seok et al., 2013); and in trauma this was the case “even after adjusting for

the severity of injury, age of the animals, timing, and individual leukocyte populations” (Gentile et al., 2014). This may explain the surprisingly different disease susceptibility even between humans and non-human primates- only humans develop atherosclerosis, Alzheimer’s, epithelial cancers (e.g., of head and neck, breast, lung, stomach, pancreas, colon, ovary, prostate), asthma, rheumatoid arthritis, and some infections (e.g., falciparum malaria, AIDS, complications of hepatitis B or C).

Is AR predictive of human response to drugs and disease? I have argued that the empirical evidence shows the answer is “no”. And I have argued that in principle, based on complexity science, the answer is “no”. The only exceptions may be those where the question is subject to study solely by reductionism; that is, examining simple systems at a gross level - for example, discovering the germ theory of disease, that the heart circulates blood, and that the immune system reacts to foreign entities (Greek & Rice, 2012). But, for any of the details, such as accurately predicting human response to drugs and disease, we will have to look elsewhere, to alternative methods of research.

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How Do We Justify Biomedical Animal Research For Human Benefits? Part II.

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In Part II I discuss whether animal research (AR), even if it were to provide large benefits to humans, is morally permissible. It is worth clarifying why AR is a moral issue: animals are harmed in experimentation, with harms including confinement (causing boredom, loneliness, and frustration), fear (even from simple things like handling), pain (from blood collection, and disease/injury induction), and early death (Degrazia, 2002; Nobis, 2012). Is any or all animal research (AR) that involves seriously harming animals in these ways morally permissible?

One common argument claims that the immense benefits to humans from AR make it morally permissible. This argument needs some fine tuning, in that it really should say that some AR benefits some humans, since not all AR can be expected to benefit all humans. And if the goal really is to create the most human benefit possible, it is clear that more benefit to humans would occur by using known interventions

to save the world's poor and starving humans by efficient humanitarian aid (Nobis, 2012). Importantly, even if some AR does benefit some humans, this does not make it morally permissible. More benefit could come from human experiments; however, that does not justify harmful nontherapeutic, nonconsensual human research. We need to know why benefit may justify AR, but not human research.



Another common argument is that there are no alternatives: AR is uniquely necessary for human benefits. There are two problems with this claim (Nobis, 2012; Regan, 2012). First, it is not clear that

AR is uniquely necessary even if it works, as there are alternative methods. There has been little research into alternative methods, but even so, in-vitro (cells, tissues, organs, and their interactions in bioreactors), in-silico (computer models), and in-human (epidemiology, novel scanning and non-invasive interventions, microdosing, autopsy, etc.) methods are emerging that can advance human medicine. Of course, there is always the alternative of just not doing AR. Second, and perhaps more importantly, it is not clear how having no alternatives makes AR morally permissible. More benefit could come from “uniquely necessary” human experiments; but, that does not justify harmful nontherapeutic, nonconsensual human research. Once again, we need to know why having no alternatives for benefit may justify AR, but not human research.

This brings us to the human exceptionalism argument: there is a morally relevant difference between humans and animals that justifies doing AR but not human experiments (Gruen, 2011). This difference is usually stated to be unique human capacities, such as autonomy, moral agency, self-consciousness, language, creativity, being able to enter into contracts, or something along those lines. There are two problems with this argument. First, I suggest that we don't really believe it anyway. Would we really make these claims: “it is wrong to kill Sally because she can deliberate and act autonomously on moral principles” (Nobis, 2002), or “it is wrong to torture and kill me for no good reason because I am able to make moral decisions” (Graham and Nobis, 2006). Second, and more importantly, the argument from species overlap shows the moral irrelevance of the capacities chosen (Dombrowski, 2006; Horta, 2014). There are many humans who do not have the relevant moral capacity: babies, infants, those with severe congenital brain abnormalities, and those with severe acquired brain injury or degeneration. We consider these humans moral patients, and thus we do not do experiments on them. In addition, there are many animals (including mammals and birds) that have more sentience (conscious ability to experience suffering and pleasure = can be harmed) than these humans. They too are moral patients. More and more

we are learning about the sophisticated cognitive and emotional capacities of many of the animals used in AR, including metacognition and envisioning the future (Foote et al., 2009; Balter, 2013).

More specifically, the argument from species overlap goes like this: animals have interests at least in the minimal sense that they feel and try to avoid pain, and feel and seek various sorts of pleasure and satisfaction; some humans have interests only in the sense above; in terms of the morally relevant characteristic of having interests, some humans must be equated with animals; absent a morally relevant characteristic that distinguishes all humans from all other animals, our moral judgments are inconsistent; therefore, we cannot give a reasoned justification for the difference in ordinary conduct (Dombrowski, 2006). This is the charge of speciesism: discrimination and prejudice against another based on the morally irrelevant property of species. This is similar to prejudices based on other morally irrelevant properties, including racism and sexism. Peter Singer asks for this test “would the experimenter be prepared to perform his experiment on an orphaned infant or brain damaged human?” (Singer, 1989) I think that, on reflection, when asked why it is wrong to harm the humans whose capacities overlap with animals, the response is that these vulnerable humans are able to experience things like pleasure, joy, happiness, sadness, pain, and suffering, and thus using them in experiments is harmful for them. The same applies to vertebrates (at least, mammals and birds) used in AR.

There have been two replies to this argument from species overlap. One is that “the issue is one of kind”; humans are of the “kind” [the species *Homo sapiens*] that have the relevant moral properties of moral agency when “normal” [“what humans retain when disabled, animals have never had”] (Cohen, 1986). The problem with this argument is that there are at least four connecting premises missing from the argument that would need to be endorsed or better explained, and I do not think that is possible (Nobis, 2004).

1) Properties of the “normal” group transfer to each individual, some of whom lack the property. How does this happen? 2) Only some of the properties,

all of them “normal” and good, transfer in this way. Why do properties like having two arms, able to solve math problems, able to drive a car, and able to wage war, not transfer? 3) Only biological properties are morally relevant to determine the “kind” [i.e. species: based on ability to interbreed], and other “kinds” do not count. Why do the “kinds”, “conscious sentient animal” and “subject-of-a-life” not count? 4) This is different from previous similar arguments based on biological properties that were wrong- we used to think our “kind” was our race, sex, ethnic group, social class, etc. This darker side of solidarity suggests that “kind” refers to simply what it has been customary to do.

The second reply is that we are allowed to have partiality to humans, in much the same way that we are allowed to be partial to our family and friends (Brody, 2001). The problem with this is that even these examples of allowed moral partiality do not make actively, intentionally harming (i.e., exploiting) innocent beings we care less about permissible (Zamir, 2006). There are limits to partiality- we allow partiality as long as it is ancillary to, rather than a replacement for, impartial consideration of basic interests. Partiality is different from discrimination in that it may allow benefiting first the ones we care for more, but it does not justify harming those we care less about (Dombrowski, 2006). For example, we are not allowed to kill the stranger so as to benefit my child (Dombrowski, 2006); I am not allowed to take food from another needy child, or to enslave a stranger, or to kill a business partner, in order to feed my own child (Sapontzis, 1988). We should remember that “what enrages human sensibilities is a very fragile thing” (Norcross, 2012). Indeed, “human history is littered with examples of widespread acceptance of the systematic mistreatment of some groups that didn’t generate any sympathetic response from others” (Norcross, 2012).

So, what does all this mean? I posed the question: is there an ethical argument that AR is morally permissible? I have argued that the answer is “no”, at least not one that has withstood scrutiny. Animal research may be permissible, but I would argue only if the following two requirements are met: similar

research on humans with a similar degree of sentience is also acceptable; and, there are to be reasonably expected immense benefits to human medicine from the AR. And both are very unlikely.

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Religion, Emotion, Virtue and the Use of Animals Debate

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In 1947, when the term “vivisection” held roughly the same significance that the phrase “animal use in medical research” does today (notwithstanding improved conditions for research animals), C.S. Lewis (1970) wrote: “It is the rarest thing in the world to hear a rational discussion of vivisection” (p.113). Things haven’t changed in this regard. Lewis suggests that this is the case because the emotion of pity overrides reason on both sides of the debate. On one side, there is an overwhelming sense of pity for suffering research animals; on the other, the suffering of humans takes precedence. Lewis proposes that, in the interest of rational debate, feelings of pity be bracketed. As his words attest, this is not often done. But should it be? While it is clear that some negative emotions (e.g. arrogance) inevitably undermine constructive debate, it is also possible that some positive emotions, such as pity, may help lead to the “rational discussion” that Lewis sought. As Martha Nussbaum (2006) writes,

In some ways, our imaginative sympathy with the suffering of non-human animals must be our guide as we try to define a just relation between humans and animals. Sympathy, however, is malleable. It can all too easily be corrupted by our interest in protecting the comforts of a way of life that includes the use of other animals as objects for our own gain and pleasure. That is why we typically need philosophy and its theories of justice. Theories help us get the best out of our own ethical intuitions, preventing self-serving distortions of our thought. (p. B6)

But not all theories work for all problems. Discussions of the use of animals in medical research can easily

become mired in disagreements about the relevance, necessity, or benefit of findings from animal models for humans. Even if it is agreed that some use of animals has resulted in human benefit unlikely to be obtained otherwise, there is often endless debate about rights, the utilitarian arithmetic of suffering, and the problem of speciesism – none of which address the crucial aspect of the debate which Lewis identified and yet also avoided: emotion.

Yet there are approaches to the emotions, theoretical and not-so theoretical, which lend insight on this topic. One of these is what Tom Regan (1986) refers to as “the sleeping giant” (p. xii): religion. Of course, religion is a complex and diverse human phenomenon and teachings on the use of animals vary greatly across religions. But all religions are concerned with the distinction of the sacred from the profane and the idea of the sanctity of life that follows from that distinction. How and why a religion distinguishes the sacred from the profane will play a large part in determining its idea of the sanctity of life and, hence, its teachings on the use of animals. There is extensive and classic literature on the sacred and the profane and it would be impossible to do it justice in this short reflection (Durkheim, 1915; Girard, 1977). Nevertheless, even without a thorough review we can safely conclude that ideas such as what is and is not sacred are important to the discussion of the use of animals and that these ideas will inevitably be associated with profound emotions that must be considered if there is to be any hope of achieving “rational discussion” (MacIntyre, 1999).

If grappling with the reality of emotion is necessary for understanding the ethical complexities of the use of animals, how can philosophy do so? “It seems plausible that we will not approach the question of justice for nonhuman animals well if

we do not ask, first, what theory or theories might give us the best guidance" (Nussbaum, 2006, p. B6). Deontological, Kantian, and Utilitarian approaches have not succeeded in this regard. It may be that a more profound, less reductionist consideration of neurobiology than has generally occurred could yield much fruit. After all, emotion is one of the main ways in which we experience the mind-body connection and the value of animal bodies is a major concern of bioethics. But, despite a surfeit of "neuromania", not much serious work has been done in this area to date (Tallis, 2011).

Some virtue ethicists have gained insight into the question of justice for non-human animals through a serious consideration of emotion. Tracing its roots to Aristotle, virtue theory gives precedence to traits of character over rules or calculations of utility. Virtues such as courage, truthfulness, and compassion and the absence of their opposites, the vices, are held to be the basis of a practical wisdom that allows correct judgment about right action. This sort of character development is closely associated with the predominance of certain emotions and the diminishment of others. Garret Merriam (2012) gives a simple example of how this may apply to human relations with other animals,

I ought not to harden my heart to the suffering of animals because to do so would be to cultivate the vice of callousness. A quintessential example of a detrimental character trait, callousness is a vice because it inhibits our ability to connect with other emotional beings and makes our lives less fulfilled, less complete, less eudemonistic. (p. 130)

But how are these virtues and vices to be cultivated and how can their implications be made, manifest in the relations of humans with other animals? One can extrapolate from her comments above, that Nussbaum sees a role for theory in the clarification of how virtues could be applied to the question of the use of animals. Her "capabilities approach" leads to practical conclusions by first asking, what are the actual capabilities of the animal in question and then

asking how humans may contribute to the fulfillment of these capabilities (Nussbaum, 2006).

Many philosophers of antiquity saw the cultivation of the virtues to be, at least in part, the responsibility of philosophy. But they saw philosophy to be more a form of communal life than a mere intellectual pursuit (Hadot, 2002, p. 56). Both the Academy and the Lyceum had legal status as religious associations in 4th century B.C. Athens (Lloyd, 1968, p.8). It seems reasonable to assume that such communities of thought and virtue would have been willing and able to engage in the rational discussion that Lewis sought for this important topic. But are there or have there ever been human communities that cultivate virtues which include a consideration for the welfare of non-human animals?



Answers to these questions vary widely depending on many factors, not the least of which is one's definition of community. Some see contemporary academia as having such communal status. For others political advocacy groups working to ensure animal welfare through legal change are synonymous with such communities. Still others look to religion for these communities of thought and virtue. Both Eastern and Western monasticism have traditions of concern for animal welfare. The rule of Benedict forbids the eating of meat of four-footed animals except by the very sick and some Benedictine traditions also discouraged consumption of fish and fowl. Many other monastic traditions have similar practices (Johnston, 2000, p.31; Agamben, 2013, p. 111). Whether the motivation for such practices is anthropocentric or not, they are clearly oriented towards a cultivation of virtue that can serve the interests of both human and non-human animals.

Some lay religious communities also cultivate an ethos of concern for all of creation. I have witnessed this first hand in one such community, "L'Arche", which describes itself as "an international organization of faith-based communities... with no religious affiliation" (L'Arche, 2014). Significantly, its founder, Jean Vanier (2001), completed his doctoral degree on "Happiness as Principle and End of Aristotelian Ethics".

Of course, the family, as the fundamental communal institution in the majority of cultures, is often the primary influence on the cultivation of virtue. The way we treat our children, partners, friends, strangers, and animals is the major determinant of the present and future welfare of our community and of all of its members (Fitzgerald, 2005).

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The Banality of Animal Research

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We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes - something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view. (Aldo Leopold, *Thinking Like a Mountain*)

'Tis not contrary to reason to prefer the destruction of the whole world to the scratching of my finger. 'Tis not contrary to reason for me to chuse my total ruin, to prevent the least uneasiness of an Indian or person wholly unknown to me. 'Tis as little contrary to reason to prefer even my own acknowledge'd lesser good to my greater, and have a more ardent affection for the former than the latter. (David Hume, *A Treatise of Human Nature* Part 3 Section 3)

The idea for this issue of *Health Ethics Today* was born after a question and answer exchange at the Dossetor Centre Health Ethics Seminar, *How Do We Justify Biomedical Animal Research for Human Benefits* which took place on April 30, 2014 between

the presenter, Dr. Ari Joffe and several researchers in attendance. Having trained as a philosopher, I was pleasantly surprised at the vigour of the Q & A period, but became alarmed at how quickly the quality of the debate disintegrated beneath the level of facts and reason to an exchange of non-sequitur and ad-hominem remarks. After all, this was not a segment on Fox News, but rather an exchange of ideas at what I consider and expect to be the highest level of academic sophistication and respect.

In the following months, I thought a lot about that day. I wondered how, at a high-calibre, health science and research institution, we fail to create or sustain a safe space for the open exchange of ideas (especially controversial ones). Ultimately, the feeling that lingers is that we are not in the midst of a well-defined discussion, a mature debate about this topic, but perhaps rather at the start. Clearly some of the researchers in attendance disagreed with the content of Joffe's arguments, but there was also a notable defensiveness, perhaps from the perception that the criticism of animal research (AR) necessarily implies by extension a flaw in the character of the researcher. Perhaps that visceral reaction was rooted in a sense of betrayal, the idea that someone like Joffe, a physician working in the high-tech environment of critical care, could possibly question the means by which the tools of his trade were produced? Regardless, the goal of this paper is not to psychologize or criticize the participants of the debate that day. My goal is to emphasise the essential importance of continuing the discussion, as awkward and uncomfortable as it may be, and to facilitate and encourage the debate to extend to heretofore unexamined areas, both conceptual and personal.

My contribution to this issue of *Health Ethics Today* benefits from having had access to the work of the other contributors. To that end I would like to explore two themes introduced by Frank and Joffe. The quotes at the start of this work (from American wilderness advocate Adolph Leopold and Scottish philosopher Davis Hume) re-introduce these themes and suggest that, despite their absence in the standard utilitarian discussion surrounding animals, there has always existed reflections on value, interdependence, and ethics that, at most, contradict or, at least, compliment traditional thinking about the sacrifice of animals for human ends. The first theme, broadly conceived, is the role of emotion in moral action (I consider “emotion” here as synonymous with the older term “passions”, or more modern, “affect”). The second theme falls broadly under the term “anthropocentrism” although this term is increasingly used only in a pejorative sense by critics of the view. Although I will discuss these ideas separately, it is not difficult to see their interconnectedness. Both ideas attempt to convince us in a descriptive as well as prescriptive sense, that the axis of the debate surrounding animal welfare should not be the Platonic “rational agent”, appealing to reason to determine if the burden of animal suffering is outweighed by the potential of human benefit.

Despite their relatedness, the appeal to emotion, and the argument against anthropocentrism, works on different scales. One asks us to reflect on our authentic moral selves, the other, to “think like a mountain”. The relevant question is, anything gained by doing either?

Reason, Emotion, and Justification

In my clinical practice as a hospital ethicist, I often find myself in the midst of disputes in which one party clearly perceives the other as the embodiment of maleficence. While often sympathetic to the perspective, I rarely agree with the judgement. Despite predictions against the Western backdrop of simplistic and naive moral narratives, true villains are quite rare. It is remarkable how little work the attribution of villainy and evil need to do when accounting for the sufferings of the world. The philosopher Hanna Arendt, most eloquently described this phenomenon

in the title of her book *Eichmann in Jerusalem: A Report on the Banality of Evil*.

Written after Arendt was sent to Israel to cover the trial of the infamous Nazi following his abduction from post-war Argentina, Eichmann stood accused as the surviving architect of the holocaust. However, the man Arendt witnessed testifying to the atrocity, amazingly did not fit the mould of the villain.

The trouble with Eichmann was precisely that so many were like him, and that the many were neither perverted nor sadistic, that they were, and still are, terribly and terrifyingly normal. From the viewpoint of our legal institutions and of our moral standards of judgment, this normality was much more terrifying than all the atrocities put together. (epilogue)

Arendt’s remarkable thesis, that “ordinary” people can and do participate in and execute unspeakable atrocities, went on to inspire a young social psychologist to devise an ingenious experiment to examine the social parameters necessary to compel “good” and “normal” subjects to act in ways they believed, clearly caused harm to others. Stanley Milgram’s 1963 *Behavioural Study of Obedience* still stands as one of the most important and controversial experiments as it revealed a remarkable and profoundly counter-intuitive aspect of human behaviour that indeed supported Arendt’s thesis.

The experiment demonstrated that subjects could be convinced to harm a fellow person (in Milgram’s study by supposedly administering potentially lethal shocks) as long as figure of authority both explicitly directed the harmful action and absolved the study participant of any responsibility of his or her participation.

My goal in mentioning Nazis and controversial social science is not a rhetorical one. Rather it is to suggest that it is a mistake to infer, as is often done, that any criticism of AR automatically implicates researchers as willingly remorseless sadists. It is naïve and counterproductive to assume that every

criticism of AR implies or is grounded by an ad-hominem condition. Practically speaking, effective scrutiny of AR should purposefully exclude any question concerning the moral character of researchers other than the extent to which the ethical legitimacy and justification of AR (to an individual, to an institution, to a bureaucracy, to a government,) is an ongoing *hermeneutic* process. This demand is difficult in that it requires something other than the application of institutional authority and institutional justification, e.g., “all human drug development requires animal testing”. Rather, it should provide support for a case-by-case, class by class, evaluation of animal use, engaging both broader stakeholder communities and legitimate consideration of non-traditional moral discourse. As Frank argues, this process of justification must not be limited to strict utilitarian rationalization or rote cliché, but must include the moral experience of the researcher, the “feeling” of what it is to use animals in AR.

A very early appearance of what we would identify as the idea “compassion” is the Greek term *splagchnizomai*, literally, “to be moved within one’s bowels”. In medical pedagogy, it was once claimed that a good physician should prevent any emotional attachment to a patient, as such attachments undermine both the rational process of diagnosis, treatment, and professionalism in general. One often overlooked but remarkable aspect of the Milgram experiments, particularly visible in the surviving film documentation of the study, is the affective cost of the subjects who believe they are shocking an unseen human being. Although in the initial study, 26 of 40 participants were convinced to provide shocks to the endpoint of the study (450-volts), the toll on the study participants was heavy, including, according to Milgram, sweating, lip-biting, stuttered speech, trembling, digging fingernails into skin, seizures, and fits of anxious laughter. It seems clear that the theoretical “harming” imposed by the subjects under obedience conditions was not exactly theoretical as the welfare of the subject was actually compromised. This finding is less surprising as we might assume that no healthy human being can, without justification, cause harm to another without incurring a potentially

significant cost to him or herself. Many troubling questions remain, such as; does a reasonable justification mitigate the harm suffered from harming? Does the human cost influence the rationale for justifying harm?

The history of philosophical ethics can be read as a unified effort to exclude emotion or affect as legitimate criteria for moral action. However, the most recent psychological and philosophical evidence, especially since the application of modern functional brain imaging, seems to have very much reclaimed the role of affect in human moral comportment. Affective responses of sympathy, compassion, natural justice, and abhorrence to harm, once viewed as weakness of character or threats of rational thought, are now clearly identified as necessary working aspects of the healthy psyche of humans as social moral beings. This leads us to two questions: 1) must we demand that the justification of AR incorporate both a philosophically sound AND psychologically accurate conception of moral action? 2) how do we assess the costs of AR on its human participants? Consequently are we capable, in the process of doing AR, of saying “we might be allowed to do it, but does this FEEL right or wrong...”?

Justifying Anthropocentrism?

In the early 1960’s, Rachel Carson’s *Silent Spring* sounded a public alarm about the effects of widely used chemicals like DDT on the natural world. Carson’s demonstration that the somewhat predictable consequences of unmitigated prioritization of human or corporate benefit imposing grotesquely disproportionate burdens on the natural world is nearly universally considered immoral. However, conceptually, neither animals or ecosystems have ever consistently claimed place-hood at the table of moral consideration. This began to change in the early 1970s. Peter Singer’s *Animal Liberation* proposed a clear and unequivocal argument that animals, despite an inability to argue rationally for rights, demanded moral consideration in light of their capacity to feel pain, to suffer. Arne Naess proposed the idea of a “Deep Ecology” which would take an eco-centric approach to balancing human activity in the natural world, prioritizing “vital needs” of not only human

society but of ecosystems as well. Starting conceptually in the 1980's and continuing to today we see the use of more familiar instrument of legal rights in conventional court systems used on behalf of individual animals (usually primates or higher species) to appeal for freedom or protection, even to grant the status of personhood. Hence, there is no longer a prima-facie justification, as human beings, to act as we would with relation to animals or the natural world. Nor should we be surprised that some of the current uses of AR should strike a civil society as trivial or immoral and it is certainly not enough to rhetorically dismiss opponents or refuse to enter into a reasonable discussion.



A relevant question one might ask at this point is, “who cares?” Why should scientists engaged in legitimate and lawful research be asked to think morally about the means by which medical science is advanced? Joffe suggests that to fail to do so results in fettered process, poor predictive models, and missed opportunities. Frank and I would argue that animal welfare is a concern that extends far beyond the laboratory, the clinic, or even the farm, but rather is inseparable from the question of human well-being. It is not sufficient for researchers to simply obey law and policy, even within traditional governance models. It is important that the researcher clearly appreciates the justification for animal research in his or her own language and context, but above that, the researcher should understand what critics of research are saying, as well as, how and why they say it.

Despite their relatedness, the appeal to emotion, and the argument against anthropocentrism, works on different scales. One asks us to reflect on our authentic moral selves, the other, to “think like a mountain”. The relevant question is, what is gained by doing either? In addition we must examine how either form of thinking addresses or embodies the currently espoused aspirational AR goals like “Three Rs” (Replacement, Reduction, and Refinement). Ideally clinical researchers require the freedom and incentive to either justify or refuse AR on a case by case basis without excessive regulation and with an emphasis on the actual fulfillment of the Three R agenda.

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