Killing and Feeling Bad: Animal Experimentation and Moral Stress

Mike King

University of Otago

Abstract: *This paper is prompted by the introspective account of animal experimentation provided by Marks in his paper 'Killing Schrödinger's Feral Cat' in this journal. I offer an ethical interpretation of Marks' paper, and add personal reflections based on my own experiences of being involved in animal experimentation. Identifying the emotional and cognitive experiences of Marks and myself with Rollin's concept of 'moral stress' I explore this effect that conducting animal experimentation can have on the people involved. I argue, based partly on personal anecdotal experience, that this stress varies depending on the organisational structure of animal experimentation, and one's position within that structure. Under conditions of divided labour, other things equal, I claim that moral stress may be reduced for those involved. Since moral stress can have negative effects on those that experience it, this seems like an improvement of animal experimentation, in at least this respect. However, I interpret Marks as suggesting that it would be worse if animals were being harmed in animal experimentation and those involved were not feeling moral stress, or moral stress was diminished. I examine what value moral stress might have, since loss of this value could justify preserving it. I provide a tentative argument that the reduction in moral stress promoted by division of labour and through other means does not sacrifice moral value in the way Marks seems to imply. More generally, this paper aims to continue the constructive sharing of views about animal experimentation by those who are or have been involved in it, with a view to gaining a better understanding of animal experimentation, and making moral progress within it.*

Keywords: *Animals, animal experimentation, harm, killing, moral stress, organisation, division of labour*

I was prompted to write this paper after reading, in this journal, Clive Marks' excellent introspective paper 'Killing Schrodinger's Feral Cat'. He is right that it is rare for those involved in animal experimentation to publish personal reflections on some of the emotional aspects of their work. Given the complex morality of animal experimentation, and the deeply held values on all sides of this contested practice, perhaps this gap in the literature is not surprising. Personal reflections, like those Marks provides, might seem to expose a vulnerability that could be used by those critical of the practice of animal experimentation. This might also be viewed negatively by one's peers. There is no reason to believe that those involved in animal experimentation have identical views of the morality of the practice. Criticism can be from within as well as without.

As a former animal scientist (since completing my undergraduate degree and PhD in animal science I have worked in bioethics), I would like to take up Marks' suggestion, and add some reflections of my own, drawing on my own experiences as an animal scientist. I believe there is a great deal of convergence in our views as well as our experiences, but also some divergence. Along with Marks, I encourage other animal-based researchers to discuss their views and experiences. In doing so we may gain a better understanding of the moral terrain of animal experimentation from the perspective of those conducting it. This may reveal whether and when these views and experiences are uniform or diverse, and, in all cases we can examine the reasons that support them. By elucidating reasons in this way, we may progress critically towards a more reasonable account of the morality of animal experimentation.

Marks did not write his paper in an analytic philosophical style, and it would be unreasonable to engage with it as though its purpose is to offer an analytic account or syllogistic argument. However, I will engage with it as serious and sensitive work that suggests, implies, and sometimes makes, normative, moral claims. As a bioethicist I take this as an invitation to engage with these moral claims, and subject them to reasonable scrutiny. At times this means inferring propositions or claims from his writing, and seeking reasons that support or undermine these. Where I am critical of these claims the criticism is therefore not primarily of Marks' paper, but rather of the proposition or claim that I have proposed by inference from his paper. I have sought what I believe to be reasonable inferences wherever possible, however more reasonable inferences may be available. If so, I would welcome their inclusion in this discussion.

Description and prescription

In his paper, Marks described his experimental manipulation of feral cats, which included making a number of physiological and anatomical observations, some of which occurred during the process of killing them as a necessary part of pursuing the research aim. This aim was to improve welfare during killing as a 'pest' control measure. He describes some details of what he and sometimes others did, and how they behaved. He also describes the inferences he makes about cognitive and affective states (by which I mean, roughly, beliefs and emotions – these will, respectively, be used interchangeably hereafter) of those around him, such as technicians. These are based on their behaviour and statements, and Marks' own reporting of his cognition and affect while performing various tasks involved in animal experimentation.

Marks' reflections are primarily descriptive of his experience, but there is also a prescriptive, normative, element. Descriptively, it is clear that Marks was, and is, emotionally and cognitively affected by the practices of animal experimentation that he engages in. But it is also clear that he believes he *ought* to be so affected. Moreover, he is not a relativist or subjectivist about this. He does not think that *he* ought to be, but if others in his position feel differently they may also be responding as *they* ought to. This normative, prescriptive, claim is most clearly expressed in the statement 'No biologist should ever carry the burden of killing for science too easily, because only a psychopath kills without emotion' (51).

This can be interpreted as expressing the claim that if an individual is responsible for killing animals, and if the individual is a conscientious moral agent, then they ought to have appropriate feelings in response to committing this act. If this interpretation is correct, more needs to be said about what 'appropriate feelings' are. Marks is not clear about this, but this does not expose a deficiency of his paper, which, as I have said, does not propose to offer such explicit detail. He refers to putatively moral capacities, or perhaps virtues, such as compassion and empathy that scientists should possess and exercise. 'Appropriate feelings' in reaction to killing may be the affective response elicited by the successful exercise of moral capacities such as compassion and empathy.

If we take Marks' self-reporting as an indication of what this might be like, 'appropriate feelings' might be a misleading term. Marks seems to be both affectively and *cognitively*

responding to his situation, actions, and their effect on others (including non-human animals). As an example of the former, Marks states: 'It's impossible for me to be emotionally detached when I listen to life ebb away as I press the stethoscope against the cat's chest and the heart becomes ever weaker'(60). This clearly reports that he has an emotional response to the death of the cat. He also reports that a technician looks 'emotionally exhausted' (56). However, his account lacks further explicit detail on the nature of these emotional responses and states. Whatever the content of these emotional states, however, they are commended by Marks as at least morally praiseworthy. However, we can also infer that they are burdensome, unpleasant emotions, emotions that are negative in tone.

As an illustration of his cognitive responses, Marks' account provides detail on the content of his beliefs, and the processes of thought that form and articulate them. He is prompted throughout to engage in reflection on the beliefs that collectively justify the science he is a part of, and justify the part he, as a scientist, plays in carrying out his experiments. This reflection often takes the form of doubt about the certainty of these beliefs, as well as the beliefs that would lead others to condemn animal experimentation wholesale.

So, on this interpretation of his account, 'appropriate feelings' when killing animals in scientific experimentation is a misdescription of the response Marks is claiming scientists ought to have. Again taking my interpretation of Marks' account as representative of his meaning, it is both affective and cognitive responses that scientists ought to have in response to killing animals. Feelings are elicited and rational beliefs are challenged, both in a constant exchange that he attributes to capacities such as empathy and compassion. He states more fully: 'Surely our humanity as scientists must be measured by our capacity to empathise, as no biologist should expect to carry the burden of killing for science too easily' (64). In this quote Marks also refers to 'killing for science'. This phrase should be unpacked in order to understand what activities are being referred to. It is to this that I now turn.

Justified harm in animal experimentation

Marks is at pains to explain the ethical justification for his research, and for the harms occurring to animals within it. Some will be convinced by this, others will not. The latter's reasons for disagreeing may be that they believe that the harms to animals were not given enough moral consideration in this justification – properly weighted, the experiment would only be justified if they were reduced further, assuming they were not able to be eliminated through the use of non-sentient alternatives. A stronger view would hold that these harms are not justified unless they are a necessary part of therapeutic treatment of a sick animal – that such harmful use of animals otherwise violates the moral right of animals to respectful treatment (e.g. Regan 382–392).

There is a great deal of debate about whether animal experimentation is justified. In most of what follows I would like to set that debate aside. Although I won't defend it here, I believe the question to be unhelpful for present purposes. Following David DeGrazia, I think that any reasonable view accepts that animal experimentation is *sometimes* justified (Degrazia). The important issue to debate and determine is therefore under what conditions animal experimentation *is* justified. However, I will set that aside for much of what follows as well, although I will engage briefly with it again toward the end of the paper.

My reason for setting this aside is that the issues I wish to discuss can arise in both justified and unjustified animal experimentation. If it is reasonable to accept (some) animal experimentation, then there will be (some) harms to animals as a part of this. Depending on where the line of permissibility is drawn there may be more or less harm done to animals in animal experimentation. Even in what many would take to be a highly acceptable form, such as therapeutic veterinary experimentation, the benefit to that animal will (sometimes) justify harms that may be necessary parts of the experimental treatment. In less interventionist research, such as observational studies, the lack of intervention may allow some harms to occur (such as predation among observed animals). So, whatever the outcome of the debate over when animal experimentation is justified, some scientists will find themselves in a position in which they are permitted, or perhaps required, to harm animals, or allow such harm to occur. Given this, whatever the outcome of that important debate, we need to understand more about the effects of being in this position, and what, if anything, should be taken from them. For ease of

expression I will hereafter use 'harm' in a restricted, stipulative, sense to refer to permissible harms occurring within ethically justified research, unless doing otherwise aids clarity.

Harm and moral stress

What Marks' account shows very vividly is the affective and cognitive burden on him of harming animals in research. This kind of phenomenon is not widely discussed in the literature on animal experimentation, but it has been described by Bernard Rollin in the context of euthanasia of animals in research, within animal shelters, and in the provision of veterinary services (Rollin). I will follow Rollin's terminology and refer to this as 'moral stress'.

Although interpersonal comparisons are extremely difficult to make, my experience of animal research seems similar to those of Marks in important respects. I found myself doing things to animals that were, in some significant respect, harmful for them. If there was no compensatory benefit of the necessary magnitude that these actions best promoted, or other justifying reason, then they would simply have been, all things considered, wrongful actions. With good reason a conscientious moral agent would avoid doing them, as one would avoid any other immoral act. Being called upon to harm animals, even when it is, all things considered, justified, causes moral stress.

In my case, it was particularly difficult given that these were often animals that I had spent time with, cared for, and, to varying degrees, come to know and like. A bond can develop in these circumstances, and one's actions can seem like a betrayal of that bond, and that can contribute to moral stress. The justification given for harming animals in research is often the improvement of the lives of other human and/or non-human animals, perhaps others of the animal's species. These are animals that also deserve our moral, and perhaps emotional, concern. This assumes that the correct moral view is one that takes seriously the moral claims of beings we do not know, perhaps even beings that do not exist yet, such as future people and animals, and whom, as a result, we don't have relationships with. This impartial view can conflict with the interests of those near and sometimes dear to us. In the case of justified animal experimentation, this is likely often the case.

Harming of animals can also be a cognitive strain. The structure of the harmful act that I am considering here is that it involved committing harm that is permissible or obligatory *only if* it is justified. Without the justification, one's act would, all things considered, be morally wrongful, and this would provide a compelling moral reason not to act. Moral justifications can be hard things to grasp cognitively, and especially to grasp in a way that seems convincing at the time one is performing an act of this type. Even when one knows the justification, it can be hard to keep in mind during times like this, as Marks's account suggests. Even if it can be kept in mind, it can seem weak, abstract, theoretical, or distant in the face of an animal that one is harming or killing. That is a definite, concrete, immediate consequence of one's actions.

Those working most closely with animals are situated to experience the full force of this tension, and bear the weight of moral stress. Animals will usually be near, and can often be dear, to those that work with them (Reinhardt; Arluke 1988; Arluke 1999). Marks' account shows his concern for, and empathy with, the animals he was working with, in research on which he was, I assume, principle investigator. It also shows his efforts to keep in mind the justification for his conduct towards those animals, as he harmed them: the benefit of others.

Organisational structure of animal experimentation

Although Marks' account gives a good picture of his experience as an animal researcher, his account may not reflect the way a great deal of animal research is organised and conducted. This is not a criticism of the account, which does not aspire to give a complete description of animal research, much less in this respect. However, it is a limitation on what can be inferred from it for animal research more generally, and the experiences of others within it. I will add to this description of animal research, but I will not provide a complete account of it either. I will largely limit my account to my own experience as an animal researcher, although I will make some generalisations from it.

It is beyond the scope of this paper to explain my scientific research in much detail. In essence, I was characterising aspects of the intestinal immune response in pigs over the weaning period in commercial farming systems, seeking to better understand this immune response and improve health and growth over this time. When I began conducting animal research I sought to

be as involved as I could be in all aspects of it. Under the guidance of my supervisors, I designed the experiments, did as much of the work planning and setting them up as I could, delegating as little as possible. Where it was practicable for me to be involved, I did my best to be involved.

This meant that I put a great deal of effort and time into the experiments, and I felt personally invested in a great many aspects of them. I spent time feeding pigs and caring for them in various ways while making observations. This had the possible benefit that I was more likely to be able to tell how well they were faring and what they needed in order to protect their welfare, and I could take steps to provide for their needs within the constraints of the experimental protocol (for more on these benefits, see Reinhardt). I enjoyed seeing them, and, after a while, many of them seemed to enjoy seeing me.

Other aspects of the experiments involved doing things that were contrary to the well-being of the animals. This could be as minor as handling for purposes of weighing, taking a blood sample, or as major as administering a bacterial challenge, or administering anaesthetic, followed by intracardial sodium pentobarbitone. This would kill the pig, allowing dissection and post-mortem observations and sampling to be performed. My efforts to be as involved as possible meant that I performed as many of these as I could, sometimes with technical support, or was present with others doing so when I was unable to do it.

As I have said, performing these actions was, for me, cognitively and emotionally taxing. However, aside from the moral stress associated with being as involved as possible in every stage of the experiment, I also found that there were other costs. It was difficult to adequately perform such a number and diversity of tasks, and there were inefficiencies in multi-stage procedures, as these were generally unable to be performed concurrently. This is a cost in efficient use of scarce research resources that may be more efficiently used. It can also be a cost in terms of production of the most accurate and reliable results, without which research would be morally unjustified. These are significant costs.

In response to these costs, I quickly changed the way I organised experiments. It was not possible for me to be involved in so many aspects of the experiments and for these experiments to be conducted as well as they should be. My change was to assign myself those tasks I felt I should perform myself as the principle investigator, perform them well, and to delegate other tasks to those in the research team (usually technicians) who were competent and able to

perform them well. Substantial preparatory work had often already been done before I was required to interact with the animals, and sometimes my interaction at key times (such as post-mortem dissection) would be with the animals after they had already been obtained from their housing, anaesthetised, and euthanased. I would then perform whatever task I had to do, and others would perform subsequent tasks. The effect was a division of labour that improved the quality of the research performed. It was more efficient, and I believe it was conducted with more precision and care.

However, one effect of this was that I was not so closely involved with the animals in my experiments. Or, if I was as closely involved and had come to know them, I was not likely to be performing some of the harmful manipulations, if these were a part of the experiment. As a result of this, the cognitive and affective demands of performing experiments had been reduced for me. Assuming the same sort of experiment was being conducted, involving the same harms for the animals involved, I was experiencing less moral stress. Based on my observations of others involved, this was the case for them as well.

My experiments were relatively small in scale, but division of labour had significant benefits. In larger experiments, division of labour such as this is inevitable and necessary for them to be carried out successfully. Principal investigators may not be performing the manipulations required by the experiment; these will be carried out by other researchers in the project, undergraduate or postgraduate students, and technical staff. In the broader organisation of animal experimentation, we can find more division of labour. Laboratory personnel perform analyses on samples obtained from animals, data will be analysed by a statistician, articles will be written by a number of those involved, funding bodies distribute resources to enable research to be conducted, and administrators will facilitate the process throughout. Like any large-scale, complex activity, animal experimentation involves a massive division of labour (Arluke 1988).

Because of this division of labour, many of those involved will not see the animals who are harmed in the course of the many experiments being conducted, much less interact with them. They may not know anything about the experiments they are facilitating, except in an abstract way, or through the pieces of information necessary for their role. However, some, by virtue of the labour allocated to their role, will be only, or predominantly, in close contact with

animals, caring for them and performing experimental manipulations on them. Arluke's ethnographic research into the culture of animal experimentation supports this claim.

Given my experience, I hypothesise that the moral stress experienced by those in all of these different roles will differ. Arluke implies that this is the case, with researchers sometimes taking up other duties so that they do not have to be involved in procedures or interactions with animals that they felt uncomfortable about, and some, especially principle investigators, having almost no involvement with the animals used in their experiments. He also notes that some technicians have little scope within their role for making similar alterations to their work practice. Consequently, options for managing moral stress may vary depending on one's role, and it may be less manageable for some under current conditions.

To summarise thus far, animal experimentation is a complex activity involving the cooperative interaction of people in a great variety of roles. Some of these roles involve harming animals in the course of animal experimentation. Where the experimentation is ethically justified, this is a permissible harm to animals. Harming animals is often experienced as moral stress by those who are required to carry it out. Division of labour is an organisational device in animal experimentation, creating different roles within the overall activity. Division of labour can improve the successful conduct of experimentation, and also makes possible the distribution of morally stressful activities, such as interacting with animals in an experimental setting, and especially harming animals in the course of research. These claims about the organisation of animal experimentation raise questions that I believe to be ethically important, and hitherto neglected in the discussion of the ethics of animal experimentation. For the remainder of this paper I will outline some of these questions and advance an initial argument.

Morality, prudence and the organisation of animal experimentation

Given that division of labour seems to make possible the reduction in moral stress associated with justified animal experimentation, this raises the question of how animal experimentation should be organised. First, we have the picture that Marks provides, and that I found in my early experiments, in which division of labour does not feature strongly, but moral stress does. Second, we have the organisation of research that I moved towards in my later experiments, and

which, I claim, reflects a great deal of animal experimentation. This is an activity in which labour is highly divided, and, I claim, moral stress reduced. Which is the ethically better form of animal experimentation? In order to begin to answer this question we need to consider the values at stake. However I wish to forewarn that I will not come to any firm conclusion about what the correct answer to the question is. Instead I will advance a tentative argument and, more generally, hope to clarify how to seek such an answer.

Marks provides a personal account in which the moral stress of animal experimentation seems to be viewed as in some way valuable. This is necessary to justify the normative claim that I believe is suggested in his paper: that those involved in animal experimentation ought to experience this stress. As he says, 'That is the deal' (64). If there was no value, or indeed if there was positive disvalue, that was served by moral stress, then it would be perverse, or unethical to claim that it ought to be a feature of animal experimentation.

So in what way could this moral stress be valuable? One type of value is prudential value, that is, value for those conducting the experiments and experiencing the stress. Is it prudent to avoid involvement in activities that cause moral stress? The answer to this question may seem to follow trivially from the concept of moral stress, which seems to imply prudential cost or disvalue to those who experience it. Moral stress seems like something that makes one's life *worse*. Rollin describes well the negative effects stress can have on an individual's mental and physical health (Rollin). However, sometimes stress can be prudentially valuable, all things considered, if it promotes the important interests of those who experience it. Physical and psychological stress occurs in many sports, and may even be sought in order to develop strength, resilience, and improved performance. Some may even view this stress as valuable in itself, rather than as a means to sporting excellence. So I believe the answer to this question at least doesn't follow trivially from the fact that *stress* occurs.

In what way might moral stress be of prudential value? Or, put another way, in what way might moral stress make one's life better? Marks' reference to psychopathy can provide a clue to one possible answer to this question. He states that 'only a psychopath kills without emotion' (64). The lives of psychopaths and those people with non-psychopathic psychologies can no doubt be better or worse for them in different ways. But one way that the life of a

psychopath seems of less value for them compared to their non-psychopathic counterpart is that the life of the psychopathic lacks moral value.

On this view, those who did not feel moral stress while conducting justified animal experimentation would be lacking moral value in the same way the life of a psychopath lacks moral value. But we need to question why the life of a psychopath lacks moral value. One reason why it might lack moral value is because the psychopath lacks the *capacity* to understand morality, and be moral. We might judge the psychopath as unfortunate because they are not the sort of person who can *understand* moral good so it is never possible for them to choose to act in light of this value.

Taking stock of the argument thus far, I have claimed that the division of labour in animal experimentation can reduce the moral stress associated with harming animals in the course of justified animal experimentation. I have also claimed that what makes the psychopath's life less valuable is that they lack the capacity to understand moral good. Marks likens those who would kill without moral stress to psychopaths. So we must now ask this question: does division of labour in animal experimentation make people conducting it relevantly similar to psychopaths? This would be to say that they would lack the capacity, or have diminished capacity, to understand moral value in the same way as the psychopath.

I am unsure of the correct answer to this question, partly because the answer should be sought empirically. Just as psychological analysis of psychopaths provides evidence that they lack moral capacity in some important respects (Duff), it should be possible to assess the moral capacity of those who work in animal experimentation under conditions of divided labour. If they lose the capacity to understand moral value, then this would support Marks' claim, on this interpretation of it.

Despite my doubts about the correct answer, I am inclined to think that moral capacity is not impaired under conditions of divided labour in justified animal experimentation. Speaking anecdotally, I do not believe I lost my capacity to understand the moral significance of what was occurring in the experiments I was conducting, much less my moral capacity more generally. Neither do I think I lost my capacity to experience moral stress. What I propose occurs in conditions of divided labour is that the actions or occasions in which moral stress can be elicited in conscientious moral agents are present to a lesser degree. That is, those persons involved,

their moral capacities, and the cognitive and affective components within these, are still functioning as they were before, but are being exercised less, or at least differently. They are not made more like psychopaths. Instead the moral stress they experience is reduced through a change in the organisational structure of animal experimentation.

Despite there being, I argue, no corruption of moral capacity through this division of labour, one might nevertheless object that something of value is lost through this organisational change, or at least risks being lost. That is not *capacity* to understand the moral significance of experiments one is involved in, but *understanding* of their moral significance. It is possible that through division of labour the value (both positive and negative) of moral acts occurring within justified animal experimentation are understood to a lesser degree by those involved, since the moral capacities that provide this understanding, are exercised less or differently under these conditions (this may explain the behaviour of the 'putty men' in Marks' account).

While this is possible, the claim needs to be approached critically. Such an approach would question whether the use of affective components of moral capacities is necessary for moral understanding, and therefore whether this understating is necessarily, or inevitably, lost under these conditions. Could understanding be gained in other ways?

A clue to answering this may come from one of Rollin's proposals for managing moral stress. He suggests developing a rational, defensible morality for oneself, and giving effect to this through ones' conduct (Rollin 122). According to this view, one develops a moral understanding of the activity one is part of, and can promote the change of the activity toward the good. It can also help one understand the reasons why harmful actions can be permissible within a justified activity. Marks himself may be engaged in this sort of activity, questioning and calling to mind the moral justification for his actions while performing them, and also when challenged by the views of others. While the conditions of divided labour might not provide occasions that promote this rational reflection in the same way, it seems quite possible to do this whatever one's work in animal experimentation. If so, this good need not be lost (as a matter of necessity, at least), and the prudential disvalue of moral stress may be reduced, under conditions of divided labour.

I have restricted my argument to whatever animal experimentation is justified. If the scope of the argument is restricted and made conditional in this way, then it seems correct to say

that what Rollin is recommending is that those involved develop and maintain a thorough understanding of the ethics of what they are doing, and that where what they are called to do or facilitate departs from this, they attempt correction toward the good. This will include being aware of its moral costs, and working to reduce these as a matter of moral progress. A concern that ought to be born in mind, however, is that it is likely that under current conditions some harmful animal experimentation that occurs is unjustified. Under these conditions, the moral stress that many experimenters may feel could be reduced not by altering the organisation of harmful animal experimentation, but by making progress to eliminate animal research that lacks moral justification.

Conclusion

I think there is much more to be said about the phenomenon of moral stress as it arises in our relations with animals. The discussion I have provided here is initial, and tentative. My argument for reducing moral stress in justified animal experimentation gives some reasons to do so, but leaves open the possibility that there are other values to consider that might give greater reason to oppose its reduction. This argument raises questions that I do not deal with here. Who experiences moral stress, and how this is distributed within animal experimentation? How ought it to be? Is it possible to eliminate it? Are the conditions under which my argument operates (i.e. only justified animal experimentation) not realisable in practice, limiting its practical relevance?

I wish again to thank Marks for his courageous, illuminating and constructive work. It has prompted a great deal of thought on my part, and I hope it has done so for others. More reflection and public discussion of these issues will, I hope, increase our understanding of the complex social activity of animal experimentation and promote its improvement.

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