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Societal Sentience: Constructions of the Public in Animal Research Policy and Practice

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Abstract

The use of nonhuman animals as models in research and drug testing is a key route through which contemporary scientific knowledge is certified. Given ethical concerns, regulation of animal research promotes the use of less “sentient” animals. This paper draws on a documentary analysis of legal documents and qualitative interviews with Named Veterinary Surgeons and others at a commercial laboratory in the UK. Its key claim is that the concept of animal sentience is entangled with a particular imaginary of how the general public or wider society views animals. We call this imaginary *societal sentience*. Against a backdrop of increasing ethnographic work on care encounters in the laboratory, this concept helps to stress the wider context within which such encounters take place. We conclude that societal sentience has potential purchase beyond the animal research field, in helping to highlight the affective dimension of public imaginaries and their

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ethical consequences. Researching and critiquing societal sentience, we argue, may ultimately have more impact on the fate of humans and non-humans in the laboratory than focusing wholly on ethics as situated practice.

Keywords

ethics, sentience, imaginaries, veterinarians, animal research, public

Introduction: Certified Knowledge and Animal Sentience

The use of nonhuman animals as models in research and drug testing is a key route through which contemporary scientific knowledge is certified. Indeed, animal research is arguably not just *a* method. It is *the* method of scientific inquiry. For example, Rupke (1987) argues that vivisection is what helped medicine turn from an art into a science because embracing vivisection meant embracing the experimental method. Modern animal research has moved away from the academic science of nineteenth century and is now big business (Peggs 2010), with some claiming that this equates to an “animal–industrial complex” (Twine 2013; building on Noske 1989). This interrelationship between animal research, medicine, and technoscience forms the backdrop to Elston’s (2006) insightful summary that the animal research debate has become “a vehicle for argument about what animal experiments have come to symbolize: the claims and power of modern science and a form of medicine that espouses and legitimates such science” (p. 165).

As has been frequently noted, the core “paradox” of animal research is that nonhuman animals (henceforth “animals”) are used as models because they are seen to lack certain (ethical) capacities but are used precisely because of their (biological) similarities to humans and their capacity to feel. This paradox helps explain the continued attraction of the 3Rs (see Kirk 2017; Hobson-West 2009). However, our starting point is that the very idea of reducing, refining, and replacing animals (Russell and Burch 1959) rests on a particular understanding of *sentience* or capacity to “feel.” Drawing on documentary analysis and qualitative interviews with laboratory practitioners, this paper shows how the concept of animal sentience is entangled with a particular imaginary of how society views animals. We call this *societal sentience* and argue that this concept potentially has purchase beyond the animal research field. We therefore contribute to lively debates in science and technology studies and beyond about how “life is made, valued, and ordered in science” (Druglitrø 2017, 3) and support a

stream of work (e.g., Johnson 2015) which stresses the importance of the *context* around which the detail of human–nonhuman encounters occur.

The concept of sentience is important in law. Indeed, the term itself can be dated back to the 1990s when animal welfare groups successfully encouraged the European Parliament to have the rights of “sentient beings” included in the 1997 European Union (EU) constitution (Roe 2010). As we will show in this paper, the concept is also central to regulation of animal research. However, the precise meaning of sentience is contested in science and in philosophy but could be summarized as the ability to experience pleasure and pain (C. Brown 2015). Other definitions include the ability to experience sensation (Ryder 2012), or, more provocatively, having “feelings that matter” (Webster 2005). Sentience is usually considered to be more specific than the concept of consciousness, which combines sentience, intelligence, and self-awareness (C. Brown 2015).

Despite such definitional issues, demonstrating and measuring sentience is a key task of animal welfare science.¹ This field assumes that the more science can evidence sentience of a particular species, the higher its ethical status, and the greater the likelihood of better treatment for members of that species (e.g., on fish, see C. Brown 2015). The question of whether sentience is an adequate or sufficient basis for ethics will be returned to in the conclusion, but the point for now is that sentience is intrinsically comparative. Indeed, sentience is foundational to the Aristotelian idea that species can be rated on a “unilinear, phylogenetic scale, a hierarchical representation of the animal kingdom where complexity determines presumed historical sequence and increases over time” (Knight et al. 2009, 466). As Knight and others (C. Brown 2015; Bekoff 2013) stress, this view does *not* fit with post–Darwinian ideas of evolution yet, crucially, is still widely accepted.

Having introduced the importance of animal research to contemporary science, and the conceptual importance of sentience, our next task is to consider how existing social scientific literature has understood the animal laboratory. The rest of the paper then uses empirical methods to explore how sentience is embedded in animal research regulation in the UK, and, relatedly, how key practitioners discursively manage the associated complexities.

From Discourses to Care Encounters in the Animal Laboratory

Since Lynch’s (1988) classic study of the laboratory and his influential account of how animals are transformed from naturalistic beings into data, social scientists have intensified their studies of what happens in the animal laboratory. In 2007, three authors from the US and the UK amalgamated

their individual work into a book aptly named *The Sacrifice* (Birke, Arluke, and Michael 2007). The book has its flaws (Hobson-West 2008) but is still impressive for its analytical breadth, ranging from an historical account of the emergence of the mouse model to the training of biology students. Throughout, the book is concerned with the discursive strategies and identity construction of scientists and others in the debate, and the crucial role played by images of the public.

A decade on, the field now looks strikingly different. Authors studying animal research have been greatly influenced by STS (including actor network theory [ANT] methodologies) and by critical animal studies approaches, as ways of studying “marginalized actors of all kinds” (Johnson 2015, 297). Those inspired by Haraway (2008) and others (see Johnson 2015, for a longer review) have produced carefully crafted “multispecies ethnographies” (Kirksey and Helmrich 2010) of laboratories, exploring the detail of human/nonhuman encounters. In particular, by studying the coproduction of care in the lab, authors have proposed a situated ethics, which they relate to broader themes of affect and emotion. For example, Greenhough and Roe (2011) compare the use of human and animals in clinical trials by utilizing Acampora’s (2006) concept of “somatic sensibility.” This is the idea that sentient beings made of “animate flesh” share a sense of physical vulnerability and that this allows bodily gestures to be understood by others. Similarly, Davies (2012) applies Haraway’s concept of shared suffering to argue that “all animal experimentation develops entanglements between human and animal capacities” (p. 633).

It is analytically important to examine animal care issues in the lab, but recent work is identifying some risks of focusing too heavily on the situated human–animal interaction.² For example, Nelson (2016) focuses on the practice of animal care but stresses the importance of wider jurisdictional conflicts between welfare and behavioral scientists. After examining the historical case of a beagle colony in the US, Giraud and Hollin (2016) argue that care was not a moment for ethical transformation (as implied by Haraway) but actually a mechanism to allow the science to progress unhindered. They also argue that insufficient understanding of the historical and contextual aspects of care would have missed crucial aspects of their case concerning, for example, the breeding of particular species for experimentation. This point is made even more dramatically by Johnson (2015) in her unsettling study of a researcher–lobster encounter. Johnson shows how a particular experimental moment can be understood as a messy, contingent interweaving of researcher and animal. However, to fully understand this encounter, she argues, it is necessary to bring in “broader categories of

social analysis” (p. 297)—in her case, the US political and military landscape—which helps to explain how and why the lobster body has become known, and the wider shared terrain of human and animal violence. This is reminiscent of elements of Davies’s (2012) argument about the impact of international and disciplinary tensions on care encounters.

In this paper, we use some of this critique, together with previous work on discourses (Birke, Arluke, and Michael 2007; Holmberg and Ideland 2010; McLeod and Hobson-West 2016), to justify our focus on the *wider* social and regulatory processes that may influence what goes on in laboratories. To be clear, then, our study does not analyze encounters as a way of exploring the coconstruction of human and animal corporeality or suffering. This theme is well developed by other authors (e.g., Greenhough and Roe 2011). Instead, our aim in this paper is to illustrate the importance to regulation and practice of a *particular conception of how society views or feels about animals*. We conclude that this can be understood as a kind of “societal sentience” and claim that this concept can add useful breadth to existing studies of laboratory animal science and beyond.

Methodological Approach

This paper reports findings from an empirical study of UK animal research. This study involved a close documentary analysis of law and gray literature, and a series of interviews with key actors in the laboratory, with the aim of exploring the construction of sentience.

The documentary analysis involved a critical reading of the law and guidance associated with laboratory animal use in the UK, namely, the Animals (Scientific Procedures) Act 1986 known as ASPA. Given the role of law as a key human technology (Novotny 2014), a careful reading of legal documents can show how distinctions are “made to matter” (Mansfield 2003) and how metaphorical categories—such as human or animal—are “concretized” in the material world (Delaney 2001). As was recently shown by Asdal (2012), however, it is crucially important to look at the detail of all sections and subsections of an act in order to fully understand the relevance of wider social processes.

Phase 2 of the research involved semistructured interviews with laboratory personnel at one commercial company in the UK that uses a wide variety of species. More specifically, we studied the perspectives of those individuals classified by ASPA as “named persons” (ASPA was recently amended, as explained below). This legal nomenclature refers to people with codified responsibility for ensuring that laboratory practice conforms

to the legislation. This paper focuses on two categories—Named Animal Care and Welfare Officers (NACWOs) and Named Veterinary Surgeons (NVSs). These individuals have statutory responsibilities for animal welfare, and their perspectives are therefore particularly salient for a study exploring how practitioners negotiate the complex implications around sentience.

NACWOs are usually, but not exclusively, an animal technician who has the added responsibilities of overseeing environmental controls and husbandry. There is interesting research work on junior animal technicians (see Greenhough and Roe 2011, 2017; Birke, Arluke, and Michael 2007), and a recent opinion piece that argues that NACWOs are chosen for their “strong characters” (Cruden 2012). However, the fact that the precise term NACWO is a relatively new regulatory category means that there is yet to be published work on this particular group.

Within each institution, the NACWO works closely with the NVS who has responsibility for the provision of veterinary cover and also participates in the ethical review process (Royal College of Veterinary Surgeons 2012). Veterinarians in the laboratory have been described as being “caught in the middle” (Smith 2006), between the aims of the scientists and the needs of the animals. In the US, Carbone (2004) claims that vets have become a “hot political resource” and have been used to defend experiments against criticisms from animal welfare groups. This key role is also implied by recent UK opinion polling, which claims to show that vets are the most trusted source of information on animal research (Ipsos MORI 2016). Given our interest in sentience and their underrepresentation in social scientific research more broadly (Hobson-West and Timmons 2015), this makes veterinarians a particularly interesting group to interview.

Access to staff was made via a key contact at the company. One-to-one interviews were carried out in a side room separate to the main activities of the lab, in 2013. Participants completed written consent forms and the project received ethical approval from the University of Nottingham. Using a semistructured interview agenda, twelve interviews were carried out, digitally recorded, and transcribed verbatim. It was subsequently decided to carry out full analysis on ten of these, as it emerged during interview that two had different roles under the Act. The interviews lasted up to forty-five minutes. Time was partly restricted by the practical demands of interviewees having to return to their day-to-day practice. Five participants were male and five were female. In the interest of preserving confidentiality, the extracts below will just use “NVS” or “NACWO” and a numeral as signifiers.

As with any study, this research design has limitations. For example, it is geographically limited in being focused on the UK. However, the UK has a particularly important role in the history and regulation of animal research internationally (McLeod and Hobson-West 2016). The UK also has the added dimension of a strand of so-called extremist campaign groups, a potentially unique national example of a literally and metaphorically threatening public (Welsh and Wynne 2013), and a social movement that is watched closely internationally (Hobson-West 2012). While our empirical focus is firmly on the UK, we have drawn on others' work from other countries including Denmark (Koch and Svendsen 2015) and Sweden (Holmberg and Ideland 2010). Nevertheless, we do agree that more empirical studies across laboratories and across countries would be useful, given the international landscapes of animal research (Davies et al. 2016).

Secondly, this study is based on interviews rather than more ethnographic observation. We accept that the latter can provide more detailed insights into the day-to-day practice (Greenhough and Roe 2017) of care issues. However, to reiterate, exploring care encounters is covered well in existing literature and is not our objective in this particular paper. The argument now moves on to consider how animal sentience is constructed in law and by named persons. The subsequent section then reveals how crucial assumptions are simultaneously being made in both contexts about society's attitudes to nonhuman animals.

The Construction of Animal Sentience

Documentary Analysis

In the UK, animal research operates within a tripartite framework of licensing regulated by ASPA and overseen by the Home Office. In January 2013, this legislation was revised to transpose the European Directive 2010/63/EU. This directive aimed to provide a level playing field across the EU and harmonize animal research (see Peggs 2010, for a critique). The current legislation requires an individual scientist, project, and establishment to be licensed. Project licenses are subject to scrutiny by Home Office officials, where the cost-benefit of the proposed research is considered before approval is granted. Applicants for project licenses must also justify species selection. This section draws on the consolidated version of ASPA (1986), which takes into account the provisions of the European Directive. While the impact on legislation from the 2016 Brexit vote in the UK is currently unclear, it is likely that these key provisions will continue.

The term sentience does not appear in the consolidated version of ASPA, but a critical reading demonstrates that the concept is implied from the start and throughout. The first task of the document (section 1.1) is to define what is meant by an animal:

Subject to the provisions of this section, “a protected animal” for the purposes of this Act means any living vertebrate other than man and any living cephalopod.

The immediate exclusion of human animals is notable. Indeed, Walker (2006) has compared legislation governing human and animal participation in research and notes that both entail some sort of costs or risks and are usually justified by reference to some future benefit for a larger (usually human) community. However, only in research using humans do additional values of *justice* and *autonomy* come in. These requirements are made concrete by principles such as respect for persons, self-determination, and informed consent. Walker’s regulatory difference is therefore one manifestation of the human–animal binary that has become “*the* key binary underpinning law” (Fox 2004, 477).

However, ASPA does much more than confirm human–animal binaries. The second exclusion above is for invertebrates, making the presence or absence of a backbone legally significant. Section 2.1 goes on to define a regulated procedure as a procedure that:

may have the effect of causing the animal a level of pain, suffering, distress or lasting harm equivalent to, or higher than, that caused by the introduction of a needle in accordance with good veterinary practice.

In other words, ASPA only becomes applicable when these negative states are likely to be caused above a reasonably low threshold. Invertebrates are therefore excluded, on the assumption that they are unable to experience these negative states. This makes suffering the key moral principle of the legislation. Bentham ([1789] 2007) would be proud; “the question is not, Can they *reason*? nor, Can they *talk*? but, Can they *suffer*?” (chap. XVII, original emphasis).

However, the last phrase in section 1.1, “and any living cephalopod,” immediately undermines this wholesale exclusion. In 1986, all invertebrates were originally excluded under ASPA. This was amended in 1993 to include one species, *Octopus vulgaris* (the common octopus). The committee advising the Home Office adopted a kind of precautionary approach by

giving “the benefit of the doubt” to one species, *Octopus vulgaris*, “about which most is known” (Animal Procedures Committee [APC] 1993, 7). The letter to the Home Office claims that an injured octopus does exhibit abnormal behavior, which may indicate that an animal might “feel something” (APC 1993, 30-31). The current EU legislation has gone one step further to cover all cephalopods. In addition, in the UK, a kind of “escape clause” follows (3a), that the government can subsequently amend the act to cover more invertebrates. This octopus example highlights the irony that pain only becomes legally significant once it can be measured and that in order to become measured and knowable pain often needs to be caused (see Lavi 2007). While who is considered to possess sentience may change over time, the centrality of the concept of sentience to regulation has not.

Interview Analysis

While the regulation may be clear about membership in the sentient community, we showed in the Introduction section that there is still debate in the scientific literature about how to define it. As indicated by high numbers of pauses and false starts, the interview data analysis shows both NACWOs and NVSs are also struggling somewhat to define it. For example:

That interaction I think, and how they respond to humans really and their own, sort of, understanding of the world we are in. And being aware of their environment. (04: NACWO)

Ability to think [pause] feel. Suppose the ability to think and [pause]. I've thought [pause], that's a bit too far. “Anticipate.” If animals can anticipate what is going to happen, to feel anxiety and fear and, yeah. (06: NVS)

I suppose it's an awareness of things around you [pause] it's an experience of life. Well that's how I see it anyway. How much can you anticipate things, appreciate things around you, project your life onto what's happening? How much can your mind take all of that in, process it and then by that how much are you affected by things that happen to you? How much relative suffering can you undergo as a result of that brain power that you have. (09: NVS)

That participants found the idea difficult to define is perhaps unsurprising, given the multiple definitions previously discussed. More intriguing, perhaps, is that when asked the direct question, “How do you view species in relation to each other?” most participants denied viewing species any differently. For example:

I don't differentiate. I will not indulge in an ethical conundrum. I realize that because of society we value and have placed higher value on certain animals, so that primates have a higher intrinsic value than mice, right. But you fall into an ethical trap when you do this, I don't think we should differentiate. (10: NVS)

It could be that this response is partly a function of the interview method and the desire to present an image of themselves or their science as unbiased. This participant is therefore trying to avoid "the trap," as they express it, of appearing to place animals in a hierarchy. However, in other parts of the interview, NVSs and NACWOs did appear to construct a sentience hierarchy.

Sort of goes mice first, then I think rats... then I think the higher species... rabbits, pigs, dogs, marmosets. (01: NACWO)

But I would put them [primates] and dogs at the top, and then, I suppose I haven't thought about this... perhaps rabbits next, ferrets maybe, and then maybe rats. Actually funnily they are really lovely to work with and really good, I see them as pets as well. Then probably mice... I forgot about pigs. They would, I suppose maybe on par with dogs actually. (04: NACWO)

I guess there's always the personal perspective of how advanced, or whatever you want to call it, and rodents always fall at the bottom in that spectrum. At least with the species we use, you know if you starting taking about amphibians, reptiles, fish, that would probably be less so, but within the mammals that we use, mice and rats always fall at the bottom. (07: NVS)

This strange combination of hierarchy rejection and construction confirms results of questionnaire studies involving laboratory scientists and animal rights campaigners (Paul 1995) and animal welfarists (Knight et al. 2009). Together, this suggests that sentience is performing an important discursive function in the wider animal research debate. But does this have a practical implication? Given that this study is based on interview data rather than observation, caution is needed in making this link. Nevertheless, NVS staff and NACWOs did describe scenarios where care is potentially affected. In short, a higher position on the species hierarchy does appear to increase opportunities for bonding. However, other factors, such as the study length or the personalities of individual humans and animals in the lab, were also important.

We bond with our animals, we do. When you have a group of rats in for a whole year you become, you get to know their characters. You can pick certain ones out in a group, so we do create bonds along the way. (02: NACWO)

They are all, you know, individuals, each dog is individual. You look at them in the pen and you think you're all the same, but they are all different. They all have different characteristics, they all react to things different, in different ways when you're working closely with those dogs. (06: NVS)

You bond with all sorts of animals. Technicians who had bonded with rats; big fatty rats, really laid back guys, sit back in their cages, they get really tame, and it wasn't fair for me to ask them to euthanize a "pet" (10: NVS)

One indicator of a bond being created is the assigning of names to individual animals. This phenomenon has been previously described (Birke, Arluke, and Michael 2007) and is one example of how bonding could then lead to more tailored interaction:

They give them names and they might go and spend extra time with them. If they aren't in the office, oh yeah they are playing, they are in with whatever his name is. You know, that animal just gets preferential treatment. (03: NACWO)

And if one dog on a study likes to be held in a certain way, then we will hold it that way. If there's a dog who doesn't like people with ginger hair, then we don't put that dog on a study with somebody with ginger hair. (06: NVS)

I guess there is the potential for individual dogs to have a little bit more fuss made over them. (04: NACWO)

That some individual animals are treated differently could be dismissed as an exception. Alternatively, following Davies (2012), exceptions can be seen as particularly revealing of the rules of scientific practice. More specifically, the analysis shows how individuality (of both humans and animals) reasserts itself in the face of standardization processes (see Greenhough and Roe 2011). It is therefore not as straightforward as one might assume from the legislation, which ensures some *species* are given special protection (see next section). Rather, the perceived sentience or capacities of individual animals can matter in practice. This suggests a more relational approach is operating. These findings also show how ethics is personalized, via researchers' intimacies with their subjects (Pickersgill 2012). We return to the question of ethics in the conclusion.

In summary, the concept of animal sentience is fundamental to the legislative regime governing animal research. It is also an important influence on how animal research actors claim to view the nonhumans with whom they interact. However, this is only part of the sentience story.

Sentience and the Entangled Public

Documentary Analysis

We argued at the start that the concept of sentience is inevitably comparative. Indeed, of those animals that are protected under ASPA, a clear sentience hierarchy is in operation. Those applying for licenses must ensure that the procedures:

involve animals with the lowest capacity to experience pain, suffering, distress or lasting harm. (Part 3, 181(b))

However, things are more complicated than a utilitarian reduction in overall suffering. Towards the end of the forty-page document, the consolidated version of ASPA states that a license for work using endangered animals; primates; and cats, dogs, and equidae (horses) will only be granted if certain conditions are met. The full text cannot be reproduced here (see ASPA 1986), but, in the case of primates, research must be aimed at preventing or treating “debilitating or potentially life threatening conditions in man [*sic*]” For cats, dogs, and equidae (and primates), the Secretary of State must be satisfied that the work could not be done using other species. In addition, these species must have an “individual history file” containing “particulars of the animal’s identity” and “the animal’s date and place of birth,” and “any relevant reproductive, veterinary and social information.” This sounds very much like a personal medical file that a human might have. In Koch and Svendsen’s (2015) case, the movement of the monkeys out of the lab after it closed contributed to their gradual construction as “beings with a biography.” By contrast, our study suggests that this construction is also relevant to animals *inside* the lab, especially those who are given greater status through their species membership. This analysis also shows the complexity of how the law, as well as science (Druglitrø 2017), orders, and values life.

But why is it that additional conditions need to be met in order to use these particular species in experimental research? It cannot be just a question of “biological” sentience. For example, a ferret might be said to have a

similar capacity for suffering as a cat but is not included in this additional layer of protection. The answer relates to a particular imagining of societal concerns, where more concern is assumed for certain mammalian species. This special status has been criticized as “unreflexive speciesism” (Fox 2005, 149). Others have claimed that the key factor is empathy, so that “the animals given special protection in UK law are those that look like us (primates) or have a long history as companion animals (cats, dogs, horses)” (Cuthill 2007, 18). A prominent UK animal welfarist has argued that to base species choice on levels of “distress within society” is unethical (Webster 2014, 729).

Despite these critiques, a principle of social acceptability (Peggs 2010) is clearly fundamental to animal research regulation. This has been discussed in a related context (the choice of which species to use as organ donors) as “idealized versions of what will count as public cultural acceptance” (N. Brown and Michael 2001, 14). But upon what do such idealized versions or notions of “social acceptability” rest? If assumptions about animal sentience are based on experiments in animal welfare science, what evidence (if any) is being marshaled to make such assumptions?

The short answer is probably “none,”—at least not in the text of the act, nor in supporting guidance notes. One response is that public concerns are somehow represented via lay members sitting on local animal ethics committees (see McLeod and Hartley 2017), and on the Animals in Science Committee that advises the UK government. However, as in human health care (see Martin 2008), the rationale for lay membership is a complex question. Another possible route would be via opinion polls (see Davies et al. 2016). In the UK, the national polling company Ipsos MORI has carried out ten “waves” of public opinion polling, on behalf of several agencies including government departments. These polls generate significant media coverage and are frequently used as rationale for policy change (McLeod and Hobson-West 2016). The latest survey in 2016 shows that, for medical experiments, 47 percent of those interviewed find the use of rats acceptable, whereas this falls to 19 percent for cats and 18 percent for dogs. The authors claim that “public views broadly align with statistics on the *actual* use of animal species in research,” so that those species generating most public concern are used less frequently (Ipsos MORI 2016, 10). This is a graphic example of an entangled vision of scientific practice and public sensitivity. But do those who work in the laboratory share this rationale?

Interview Analysis

As well as referring to their own practices, participants were keen to critique the cultural ordering of animals. In the following extracts, NACWOs and NVSs discuss the relative lack of cultural concern over the use of pigs in biomedical research.

The only reason a pig is treated different is because it's a farm animal, but if you compare the two species then no, it's probably not fair. (02: NACWO)

Humans are inherently speciesist I suppose, at best. The simplest way of putting it, rats and mice are dirty vermin. Dogs and monkeys are nearly human and dogs live in our house. It's cats, dogs, and horses have special protection and pigs don't. You could argue a pig and a dog are broadly equal, but we eat pigs therefore it is okay to use them in labs. (08: NVS)

I would consider a pig as intelligent and as sentient, if not more sentient than a dog, so I think it should at least be given equal consideration in that respect and I think it's simply that the dog's position as a companion animal which has probably given it greater status. Well, even in law has greater status. (09: NVS)

In reflecting on the way cultural location determines ethics, interviewees are showing themselves as “sociologically sophisticated” (N. Brown and Michael 2001), but are also engaging in a form of boundary work, where the imagined public or amorphous society becomes the disreputable other (Michael and Birke 1994), in comparison to their own views. This kind of othering was also evident when interviewees discussed their own career path. NACWOs generally presented themselves as animal lovers, interested in ensuring welfare was promoted, and as the best people to ensure that this occurred (see Druglitrø 2017 on “skilled care”). We fully expected NVSs to use this same discourse, perhaps stressing future improvements in animals and animal medicine. To our surprise, NVSs instead constructed general veterinary practice as the disreputable other, with animal use in research presented as the more ethical career choice. For example:

I don't have to put dogs down because somebody is bored of it. Keep an old lady's cat alive in renal failure, even though you know it would be better for the cat. Because you're worried the old lady will give up on life itself if she loses her cat. Those horrible, horrible ethical dilemmas aren't really an issue here. It's much clearer cut . . . It's very, very black and white what we do here. I do find that easy to cope with than practice in so many ways. (08: NVS)

While we did not anticipate this use of veterinary career as a route to ethical boundary work (Wainwright et al. 2006), the construction of nonlab worlds as the disreputable other does mirror previous studies with scientists who positively contrasted lab animal use with others such as the food industry (Hobson-West 2012). Overall, then, what the data suggest is that NACWOs and NVSs are critical and reflexive of social values, and society's presumed sensitivity toward animal use, both inside and outside the laboratory. We now conclude with what these findings mean for our understanding of animal research, for future research trajectories, and for wider work on ethics and care.

Conclusion: Societal Sentience

Haraway (2008, 80) famously argued that “Try as we might to distance ourselves, there is no way of living that is not also a way of someone, not just something, else dying differentially.” This extract is primarily about the need to view the animal as subject, not object, but the provocative quote does raise the ethical question of exactly *which someone* has to die. This paper has shown that, in the case of animal research, the answer depends on constructions of sentience. This concept is ill-defined and much debated in the scientific literature but has become a defining point in law, so that animals with the lowest sentience are the preferred object of scientific experimentation. We also showed how this kind of hierarchy is challenged by some as speciesist. As neatly summarized by Ethologist Bekoff (2013), “There aren't ‘lower’ and ‘higher’ animal species. We make that differentiation because it serves us well and makes life easier when deciding who lives and who dies” (p. 17). Crucially, however, this paper has also revealed another invented hierarchical ordering of the “other,”—this time based on perceived societal concern. Our analysis suggests that this dual ordering is evident in animal research regulation and reflected in the discourses of those charged with implementing this law.

So, in summary, we have revealed a close entanglement of assumptions about biological sensitivity in animals and assumptions about socioethical sensitivity in humans. We propose that the latter is termed *societal sentience*. Societal sentience tries to get at the imagined feelings of an abstract entity called the public or society who are, to quote Marris (2015) on another topic, “omnipresent as disembodied, imagined publics but absent as actual persons or organisations” (p. 90). Put crudely, if the ethics of animal research is primarily built on “reducing pain, suffering, distress and lasting harm” for nonhumans then, we argue, the same appears to be true for

humans: that the aim is simultaneously to reduce *societal* pain, suffering, distress, and lasting harm potentially caused by laboratory animal science. This societal sentence is often implicit but is also sometimes explicit. For example, a recent advice note by the Home Office³ explains how some project license applications are forwarded on to another committee (Animals in Science Committee [ASC]) for an additional layer of review. These include projects using specially protected species but also those “giving rise to *societal concern*” (Home Office 2015). Precisely, how the Home Office would identify these is not specified (whether via opinion polling, lay membership on the ASC, or some other mechanism). This again shows how animal sentience is closely entangled with assumptions about societal sentience. So what are the wider implications of this argument, for authors working on animal research or wider topics?

While this paper did not provide an ethnographic investigation into care encounters in the laboratory, our approach does challenge those authors who do so to be alert to the wider context within which microlevel encounters occur. In this sense, it supports the stream of work (e.g., Davies 2012; Johnson 2015; Nelson 2016; Giraud and Hollin 2016) that seeks to stand back to consider the wider social forces at play. In the case of the lobster, for example, Johnson (2015, 300) briefly notes that its experimental treatment would be unacceptable if it were a vertebrate; “lobsters can be made to *not* matter according to predominant ethical frameworks.” We agree, but our study shows that it is societal sentience and not just their biological sentience, that allows their discounting from legislation and moves them outside ethical boundaries. For the burgeoning field of work on animal research, the message is that societal sentience operates as an imaginary that has powerful impacts on regulation and on the translation of regulation into scientific practice. Those planning empirical work with others, beyond named vets and NACWOs, should therefore investigate the applicability of this concept. Indeed, a recent UK engagement exercise with stakeholders and social scientists across disciplines identified species and sentience as an important priority for further research (Davies et al. 2016). More specifically, it would be interesting to assess the extent to which attitudes to the use of certain species use differs across institutions (see Hawkins and Hobson-West 2017), and whether and how localized resistance is evident to these broader narratives of what “society” supposedly will and will not accept.

Theoretically, we also suggest that the proposed concept of societal sentience can add value to the substantial literature on imaginaries (see Jasanoff 2004) and expectations. The impact of imaginaries is highly political, but the *term itself* could be seen as usefully neutral. However, we

propose that in some cases, using the more specific term of societal sentience could help focus greater attention not just on assumptions about future users of technologies (Borup et al. 2006) but on how present societal or public *feelings or emotions* are imagined. This represents one possible response to Welsh and Wynne's (2013) call for more work on the "affective" dimension of public imaginaries (p. 546) and aligns with other work on how scientists and others manipulate public discourses (Davies 2006). Furthermore, given that the term "sentience" is more prominently associated with nonhumans, we also hope that the symmetry implied by the term "societal sentience" will appeal to those working in animal studies, for whom breaking down species barriers forms a key conceptual task.⁴

Finally, we suggest that this paper has normative implications for those working to improve conditions for laboratory animals. As we noted at the start, one key narrative of animal welfare science is that a greater understanding of the biological sentience of animals will eventually lead to positive improvements in their living conditions via changes in policy (e.g., Jones 2013). This is based on a particular understanding of the relationship between science and policy and represents a kind of deficit model of the scientific understanding of politics. However, there is a broader problematic: *is sentience the correct basis for ethics?*

Within animal ethics, Burghardt (2009) provocatively argues that animal sentience and consciousness are "overvalued on the ethical ruler" (pp. 516-17). In short, those in power are prone to find other ways to differentiate and discriminate. As feminists have long argued, stressing similarities does not necessarily equate to better treatment. Continuing to focus solely on biological sentience, and discovering yet more impressive capacities of animals, has not led to greatly improved treatment of animals (Gruen 2013). Although rooted very differently, this is strikingly similar to one criticism of ANT, which is that revealing entanglements does not necessarily tell us how to act (see Barnett and Land 2007). Likewise, critics have also started to question whether the radical decentering of the human, and a focus on care encounters, will lead to greater opportunities for care innovation and improved conditions for animals (and humans). For example, Nelson (2016) questions Haraway's optimism (shared by others, e.g., Druglitrø 2017) that moving beyond the objectification of animals will lead to "imaginative new practices of care" (p. 63). Likewise, Giraud and Hollin's (2016) analysis suggests that care work can, despite appearances, be one step on the route to compliance and actually result in a foreclosing of responsibility.

In conclusion, while we welcome the increased social scientific attention to this contested area of technoscience, and can see the value in

ethnographies of affect inside the laboratory, we suggest a greater focus on wider question of societal sentience. This concept demands more attention to, and critique of, how publics and society are imagined in regulation and in practice and how ethics is generated through such imaginaries. Surely, social scientists and humanities scholars are well placed to lead this agenda (Davies et al. 2016) and, at the very least, to move beyond the standard overreliance on opinion polls (see Hobson-West 2010). Ultimately, this more meta-level approach may represent a more fruitful way of understanding and improving the fate of humans and nonhumans in the production of certified knowledge.

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Notes

1. See Nelson (2016) for more on the blurring of science and welfare in this field.
2. The authors would like to thank the anonymous referees for helping us to clarify this claim and to see connections with this stream of literature and the present study.
3. We are grateful to Gail Davies for alerting us to this document.
4. We accept that for some readers, we are guilty of reifying categories of biology (biological sentience) and society (societal sentience). While we consider the two are coproduced, we maintain that the prefix “social” is justified in this paper in order to call attention the question of publics.

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