

## The Unfinished Business of Anna Kingsford – Towards an Enchanted Animal Ethic

MITCH GOLDSMITH

*Faculty of Humanities*  
*Brock University, Canada*  
mg12vh@brocku.ca

### ABSTRACT

This article takes seriously the claim made by 19th century antivivisectionist Anna Kingsford that experiments on animals constitute a type of malevolent sorcery, more specifically a demonic blood sacrifice. In so doing, the paper follows the work of Pignarre and Stengers in their explication of sorcery and how to “get a hold” of its operations despite its stupefying powers. To that end, I will investigate the pragmatic potential of understanding experiments on animals in this way, and more broadly, following the work of posthuman and material feminists, as a type of onto-theological phenomenon of spacetimemattering (in Karen Barad’s terms). This understanding will pay particular attention to the intra-active exclusions that haunt the laboratory space and, following a neo-Spinozist feminist approach, I will explicate the ways in which the human-animal power relations within the laboratory inhibit the creation of joyful multispecies “common notions.” In order to respond to the ghostly presences which haunt the laboratory space, and to affirm joyful, multispecies relations for “as well as possible worlds” (Puig de la Bellacasa), I will finally argue for an affirmative multispecies politics of what Rosi Bradiotti calls “zoe-centered egalitarianism” through a posthuman politics of “grace,” or “the leaving be of nonhumans” (MacCormack) which I frame as an enactment of an enchanted animal ethic.

**KEYWORDS:** animal experimentation; vivisection; Anna Kingsford; sorcery; enchantment

# 1 Naming Science as Sorcery

Paris, 1886

In the early winter, recovering from a serious illness, the antivivisectionist, occultist, physician, and feminist Anna Kingsford wrote in her diary with tremendous excitement:

Yesterday – – I knew that my will had smitten another vivisector! – – For months I have been working to compass the death of Paul Bert, and *have* just succeeded. But I have succeeded; the demonstration of the power is complete. The will *can* and *does* kill – – Oh, how I have longed for those worlds – – “*Mort de M. Paul Bert*”! – – I have killed Paul Bert, as I killed Claude Bernard; as I will kill Louis Pasteur, and after him the whole tribe of vivisectors, if I live long enough. (Qtd. in Maitland vol. 2 [1896] 2011, 268, italics in original.)

In this diary passage, Kingsford recounts her occult campaign to kill vivisectionists Claude Bernard, Louis Pasteur, and his protegee Paul Bert. In the late 19<sup>th</sup> century, at the height of the Western occult revival and antivivisectionist movement, Kingsford was involved in a spiritual campaign to end vivisection through clairvoyant visions, consultations with specters, and her use of “practical occultism” (Maitland vol. 2 [1896] 2011, 246–47).<sup>1</sup> In this paper, I want to engage with Kingsford, to take her seriously, if not always literally, and to see how we can put her beliefs and writings to work, now, in contemporary campaigns against experiments on animals.<sup>2</sup> I want to ask, how might contemporary antivivisectionists activate Kingsford’s legacy and occult cosmology to further her, and our, abolitionist movement? I argue that defamiliarizing experiments on animals, by understanding the practice as sorcery, rather than simply *bona fide* science-as-usual,

---

1 In this paper, I am most interested in Kingsford’s imaginative, occult figuration of, and response to, vivisection rather than her occult assassination campaign per se, which I leave to readers to make up their own minds about. As we will see, these proposed assassinations were but the most dramatic aspect of a broader occult orientation to vivisection.

2 For the purposes of this article, I borrow the definition of experiments on animals devised by the Oxford Centre for Animal Ethics (2018, 14) who define it as “procedures that entail, inter alia, the capture, handling, transport, confinement, and manipulation of living sentient beings and the subjection of these beings to procedures against their own individual interests, including those that involve the deliberate infliction of suffering, harm, and/or death.” Furthermore, I endeavor to use active language when discussing experiments on animals so as to underscore the agencies involved in the practice.

allows for generative and novel inroads for critique.<sup>3</sup> This critique, then, is an enchanted one, with enchantment broadly understood as an ethico-affective awareness of the liveliness and wonder of the more-than-human-world (Bennett 2001, 4–5). To become enchanted corresponds with a desire not of mastery or control but of being-in-relation and of letting be, what Patricia MacCormack (2020) calls “grace.”

Kingsford (1846–1888) was a leading figure in the Victorian occult revival whose unique synthesis of esoteric Christian theology, Renaissance magic, and interpretations of 19th century science was hugely influential to other occult movements throughout Europe and the United States. According to historian Alison Butler (2011, 120–24, 16), Kingsford’s philosophy greatly influenced the Hermetic Order of the Golden Dawn (1887–1903), widely considered to be the most influential modern western occult order whose influence is seen in contemporary neo-pagan movements, such as Wicca. In her lifetime, Kingsford’s writing and speeches were well received by fellow occultists, and she received some support from them for her campaign against vivisection (Butler 2011, 115–16, 120). Her speeches advocating vegetarianism and other health matters were also well received by many in the medical community (Butler 2011, 115). Leveraging her position as both a leading occultist and medical doctor, Kingsford synthesized these worldviews in her characterization of experiments on animals as malevolent sorcery. While Kingsford’s contributions to vegetarianism and antivivisectionism, as well as her contributions to Victorian occultism, have been documented by historians of these fin-de-siècle movements,<sup>4</sup> the import of her mystical cosmology for contemporary animal studies scholars and activists has received little attention.

Advancing an understanding of experiments on animals as sorcery, particularly a malevolent blood sacrifice, follows Pignarre and Stengers’ provocation in *Capitalist Sorcery* (2011) to think of capitalism as a type of sorcery. Pignarre and Stengers write,

It is not in our “modernised” world that we will find a name that is adequate for the type of hold that capitalism produces as a crucial part of its mode of existence – – There has, for a long time, been a name for something that manages to produce a coincidence between enslavement, the putting into service, and subjection, the production of those who do freely what they are meant to do. It is something whose fright-

---

<sup>3</sup> For a discussion of the gatekeeping surrounding critiques of experiments on animals, which often demand that critiques be “rational” and utilitarian, see Birke et al. (2007, 161–5).

<sup>4</sup> For example, regarding Kingsford’s contributions to late-19<sup>th</sup> century vegetarianism and antivivisectionism, see Preece (2011) and Vyvyan (1988). See Butler (2011) and Owen (2007) for her contributions to Victorian occultism.

ening power and the need to cultivate appropriate means of protection against is known by the most diverse of peoples, except us moderns. Its name is sorcery. (Pignarre and Stengers 2011, 34–5.)

Sorcery, for Pignarre and Stengers (2011), names that affective force and process that restricts thinking and action and short-circuits reflective, democratic decision making. The problem with capitalist sorcery, according to Pignarre and Stengers (2011, 15, 31), is that it is “a politics that kills politics.” It is a system that keeps us under its spell, naturalizing its own inevitability through an endless series of “infernal alternatives,” the “we have to or else” that are propagated by an unending supply of “minions,” hard at work “continuously creating and maintaining what then imposes itself with the self-evidence of unavoidable [capitalist infernal] alternatives” (Pignarre and Stengers 2011, 31). Understanding the continued propagation of naturalized infernal alternatives by minions, those mesmerized by capitalist sorcery, names the phenomena in a way that, the authors argue, allows one to “get a hold” of capitalism. That is, it allows one to understand its function and to resist. To name capitalism as such means “be[ing] able to (re) create politics where it seemed that there were only technical questions posed under the sign of ‘we have to’” (Pignarre and Stengers 2011, 26). Politics, broadly defined as the “questions that draw us together and divide us at the same time,” becomes the purview of all rather than an elite, specialized few, when these political questions are freed “from the fields of expertise in which they were confined” (Pignarre and Stengers 2011, 14–15). I argue that extending Pignarre and Stengers’ analysis of capitalist sorcery to experiments on animals, to an understanding of experiments on animals as sorcery, puts their work in productive dialogue with Kingsford and, as we will see, many of her fin-de-siècle occult and antivivisectionist contemporaries.

Taking seriously Kingsford’s understanding of experiments on animals as sorcery then, following Pignarre and Stengers, brings the practice back into politics, broad-based democratic questioning and critique, where before it was thought, by many, to be largely a technical matter for minions: experimenters, corporate and university administrators, government agencies and those otherwise invested in the status quo of animal experimentation. By this I mean those involved in the institutionalization of experiments on animals in existing legislation and within institutional, regulatory, and funding bodies which together work to make the paradigm “self-perpetuating and resistant to reform” or replacement (Oxford Centre for Animal Ethics 2018, 55). This (re)politicizing of experiments on animals responds to the call for the cultivation of “a culture of controversy” (Poort et al. 2013, 9) around experiments on animals through a move away from stupefying narratives which focus on technical and “rational reason-

ing,” popular among experimenters and regulators, which intentionally “silences complexity,” ignores questions of ethics, and de-politicizes experiments on animals (Poort et al. 2013, 3). Thinking experiments on animals as sorcery reframes the practice, inviting new ways of understanding and critique. It allows for new (multispecies) collaborations and coalitions for imagining scientific knowledge making differently.

To begin this process of imagining differently, this paper investigates the more-than-human politics within the laboratory, a space I understand as a multispecies assemblage engaged in the production of intra-active phenomena (Barad 2006; Birke et al. 2004; Van Veen 2020). Such an engagement raises “onto-ethico-epistemological” questions (Barad 2006) that require from us a response. Following Karen Barad (2006; 2017), I argue that questions of theology, science, and politics are not discreet but diffracted through one another in ways that demand an attention to questions of power, ethics, and care in experimental practices.<sup>5</sup> Understanding experiments on animals as sorcery seeks to place these theological, scientific, and political fragments together, to read them through one another, and to see “what flashes up” (Barad, 2017). My own diffractive methodology (Barad 2006), reading scientific and occult practices, animal ethics, and posthuman spirituality through one another, opens, I hope, new ways of knowing our enchanted relations, and enchanted relations foreclosed or yet to come.

## 2 Blood Sacrifice

Vivisection, while extending back to ancient Rome, became widely practiced and institutionalized in the European academy in the 19th century. During this time, the center of opposition to vivisection was in Britain. (Guerrini 2003, 2–3.) Late-Victorian antivivisectionists were, generally speaking, of two camps: a reform-oriented camp of upper-class and aristocratic figures working for the legal reform of vivisection, and radical abolitionists who were often involved in other fin-de-siècle social movements including spiritual ones, such as theosophy (Gandhi 2006, 11). These Victorian social movements were part of a nuanced and broad-based critique of existing social, political, and economic orders, developing what Rod Preece (2011, 2) calls an “inclusive” model of justice which sought “the elimination of suffering for all species, human and nonhuman alike.”

---

<sup>5</sup> Barad (2007, 30) writes that diffraction as methodology “involves reading insights through one another in ways that help illuminate differences as they emerge.” Diffraction then, looks for novel resonances and differences, rather than sameness, in engagements between things. In this case, things like science, politics, and spirituality and all of their accordant material, and ethereal, interlocuters.

It was in this counter-cultural milieu that Kingsford's campaigns for animals found their most enduring support.

In her address "‘Violationism,’ or Sorcery in Science," Kingsford argues that the rise of vivisection in the 19th century should be seen as the revival of medieval sorcery, what Kingsford saw as a type of magic operated solely from the "*lower personality* – – in defiance or disregard of the Divine Will" and higher orders of spiritual being (Kingsford qtd. in Maitland vol 2., [1896] 2011, 271, italics in original). In other words, malevolent sorcery is, for Kingsford, that which is used to exalt or enrich the individual practitioner; divine sorcery is that which exalts God. For Kingsford, the former is associated with what she considered to be the cruel and self-interested vivisector, and the latter the reformer, occult or otherwise, working for more humane relationships for humans and nonhumans in the physical plane and beyond.

To an apparent enthusiastic audience at a 1882 meeting of the British National Association of Spiritualists,<sup>6</sup> Kingsford (1916, 157) explained, "I propose to shew that sorcery has indeed been revived in modern times to considerable extent, but that its revival has taken place – – in that of physical science itself." Like medieval satanic sorcerers who "endeavor[ed] by force to obtain benefits from hell." Kingsford explains the "vivisector of to-day – – is, in fact, a practitioner of black magic,<sup>7</sup> the characteristic cultus of which has been described by a well-known writer on occult subjects [Eliphas Levi] as that of vicarious death. 'To sacrifice others to oneself, to kill others in order to get life, – – this was the great principle of sorcery'" (Kingsford 1916, 161.)

Writing around the same time as Kingsford, and sharing her sentiments, the antivivisectionist Mona Card ([1908] 2004) likened vivisectionists to members of the inquisition who made a deal with the devil. According to Card ([1908] 2004, 105), "The Black Art of to-day brings no more fruit of good than the older necromancy brought to its votaries in the dark ages; and as the essential principle of both is the same – – to achieve an object (possibly good) by evil means – – we can look for nothing but disaster from our unholy traffic." A very similar argument is put forward by the antivivisectionist and novelist Louise de la Ramee ([1893] 2004, 266) who writes that the demand by vivisectionists for animal victims "resemble nothing so much as the furious greed for "subjects" which is to be seen in the records of tribunals in the Middle Ages when there was a question of burning sorceresses, drowning witches, or torturing Jews – – Each

---

6 This detail is included in a footnote to the address by the collection's editor Samuel Hopgood Hart (Kingsford 1916, 157).

7 It was popular during Kingsford's time, and indeed, until quite recently, to describe different types of magic as white, light, dark, and black. I will endeavor to avoid these racialized undertones.

has the same blindness, the same egotism, the same pitilessness, the same arrogance, the same hypocrisy". For all three antivivisectionists, vivisection is a type of mystical violence, undertaken by sorcerers or members of the inquisitorial "new priesthood" (Ramee [1893] 2004) at the expense of animals, society, and their own humanity.

For Kingsford, sorcery named both the experimental act, the vivisection of non-human animals, but also the spell the vivisector cast upon society to legitimate experiments on animals and insulate experimenters from critique. But in framing vivisection in this way, it is likely that Kingsford and others were speaking at least somewhat metaphorically. For Kingsford, the above address to the British National Association of Spiritualists was likely part of the long-standing effort on her behalf to turn the spiritualist and occult communities against vivisection and, in the late 1880s, to get occultists to use their magical skills as part of her spiritual campaign against vivisection (Maitland vol 2 [1896] 2011, 47, 270–74). But while Kingsford was likely speaking metaphorically about vivisection as sorcery, she was speaking literally in her belief that through the projection of her will she was able to kill vivisectors (Maitland vol 2 [1896] 2011, 268). Likewise, this campaign, she believed, was divinely ordained and aided through the help of spirits and other nonhuman forces that illuminated the spiritual and ethical dimensions of vivisection and scientific practice more generally. The difference then, for Kingsford, between the malevolent sorcery of vivisectors and her divine sorcery, which she wielded to will vivisectors to death, was found in the operator's motivation and its resonance on ethical-cum-spiritual planes. Kingsford writes, "An act which, undertaken and executed from a lower plane, is an assassination, becomes, when undertaken and executed from a higher plane, an expiatory sentence" (Kingsford qtd. in Maitland vol 2 [1896] 2011, 271). Sorcery was divine, therefore, when enacted on this higher, spiritual plane, and malevolent when enacted for personal gain.

It was personal gain, in knowledge, prestige, and power, that Kingsford believed motivated vivisectors. This power and prestige were freely given, according to Kingsford (1916, 167), by a society under the spell of sorcery; a spell that links experiments on animals with progress and national pride. Kingsford writes vivisector-sorcerers have no need "to seek in the depths of remote forests, or in recesses of mountain caves and ruined castles" a secret place to undertake their demonic conjurations because "now the professors of the Black Art hold their sabbath in public, and their enunciations and the recitals of their hideous "experiments" are reported in the journals of the day. They are decorated by princes, fêted by great ladies, and honoured with the special protection of State legislation" (Kingsford 1916, 167). Such rewards for immoral deeds done onto innocent animals dramatized, for Kingsford, the spiritual debasement, or what she

called the “materialization,” of British and European society. This was the privileging of matter, seen by many scientists as inert and without ethical regard, and the mundane over the spiritual and moral. For Kingsford, materialization was the downfall of science, the church, and of society writ large.

Kingsford’s (1916) somewhat metaphorical claim that 19th vivisection amounted to the revival of medieval sorcery, gains support, I argue, through subsequent, less than metaphorical work by science study scholars investigating scientific practices, including experiments on animals. We shall see shortly that some have, like Kingsford, argued that the sciences can, for better or worse, quite literally serve a religious-like function and that experiments on animals can be understood as constituting a ritual sacrifice very much like sorcery. For example, in *Science as Salvation*, Mary Midgley (1992) argues that contemporary science serves much the same function as religion, providing a world-picture for scientists and the public to follow. In this post-secular context, God has been replaced by the figure of the scientist who decodes an irrational and chaotic nature, ordering matter in order to overcome it. Faith and mythmaking serve a powerful social function, argues Midgley, but this function must be acknowledged and grappled with democratically.

Midgley (1992, 32) writes that the celebration of science and scientific progress, and the myth of the scientist-cum-savior, at times erupt into “orgies of fantasy” that posit transcendental, fatalistic master narratives that sideline all other ways of knowing and other types of values. This scientific paradigm (Kuhn [1962] 2012), which Midgley (1992, 73) identifies in some strains of physics and among the sciences of space exploration, for example, “replaces reverence [for nature with] such feelings as contempt, horror, resentment, fear, hostility, estrangement and the ambition to dominate.” Midgley (1992, 73) continues, “It invites us to see the universe as something to be conquered, something beneath us, ‘objective’ in the sense of lifeless, drained of creativity and purpose, and it takes this to be the truly scientific attitude.” This particular scientific attitude, and its accordant myths, are also found amongst those post-secular discourses involved in the propagation experiments on animals. These scientific myths-cum-salvation stories, and the way in which they are brought about through a process of sorcery and sacrifice, are captured by Michael Lynch (1988) in his ethnographic investigation of the transmogrification of nonhuman animals in laboratory practice.

According to Lynch (1988, 265), “the violence done to the animal victim [in experimentation] is part of a systematic ‘consecration’ of its body to transform it into a bearer of transcendental significances.” Through a ritual ordering of laboratory spacetime-mattering (Barad 2007), which includes the detailed preparation of the ani-

mal body, experimenters transmogrify the animals' "material body and the interpretive sense of that body" from "naturalistic" to "analytic"; or from "animal" to "data" (Lynch 1988, 266, italics in original). This transmogrification of the animal is completed through ritual sacrifice.<sup>8</sup> Sacrifice in this sense is not simply killing experimental animals but a highly ritualized act with material and symbolic significances. In such an act of sorcery, the "naturalistic animal," the animal with subjectivity, becomes the "absent referent," or what Carol J Adams ([1990] 2010, 66 italics in original) calls the result of a process by which "animals in name and body are made absent *as animals*." For example, in the transmogrification of animals into "meat," Adams writes, "a dead body replaces the live animal. Without animals there would be no meat eating, yet they are absent from the act of eating meat because they have been transformed into food" (Adams [1990] 2010, 66). In experiments on animals, the experimenter-sorcerer transfigures animals into "data" in much the same way. Animals are no longer seen as animals, that is thinking, feeling, living beings, but as largely inert scientific property. Through this process, animals become spectral, their presence haunting the laboratory.

Feminist Nancy Jay (1992) argues that sacrifice functions as a masculinist paternity rite, meaning that sacrifice, in raising the specter of death for some, births, or makes others live, though not sacrificing or killing them (Luke 2007, 110). Primarily through an investigation of Jewish and Christian sacrificial practices in antiquity, Jay (1992) writes that the ability of men to sacrifice constitutes a threat to others who too might be sacrificed. By not sacrificing them, the sacrificing male establishes his paternity over these would-be-victims who, by his will alone, continue to live. According to Brian Luke (2007), experiments on animals, as a form of nonhuman blood sacrifice, function in the same way. In *Brutal: Manhood and the Exploitation of Animals*, Luke (2007, 134–39), argues experiments on animals were institutionalized and served a professionalizing function in Victorian medicine as a means of masculinizing medicine and science and of disenfranchising women and lay healers. Then, and today, dissection, as well as observing and participating in experiments on animals, serves as a "rite of passage" (Lynch 1988, 279) for students and technicians or what Pignarre and Stengers (2007, 33–34) call a "dark" initiation, involving adherence to a knowledge that separates people from what they often continue to feel, and what they now dismiss as a dream or a manifestation of sensitivity one should protect oneself from. Indeed, Luke

---

<sup>8</sup> Lynch (1988, 283) writes that MFC Bourdillon explicates a number of uses of "sacrifice" in the English language, some of which are useful for understanding experiments on animals including: "The slaughter of an animal or person, or the surrender of a possession, in ritual; the destruction or surrender of something for the sake of something else, normally of higher value."

(2007, 134–39) draws a patrilineal line between the role of male physicians who oversaw the torture and killing of women as witches throughout the European Middle Ages to the same class of professionals who, some centuries later, tortured and killed women and nonhuman animals in experimental laboratories. In this way, sacrifice, including the sacrifice of animals in experiments, functions not only as an “infernal alternative,” but as a threat.

According to the sacrificial logic of experiments on animals, we owe our lives to the father-vivisectionist, who sacrifices nonhuman animals in our place, so that we may ward off the specters of various diseases and disorders that might plague our corporeal bodies. Furthermore, without animals to sacrifice, the father-vivisectionist may turn on us, experiment on us, kill and dissect us. A series of billboards erected in various US cities in 2011 by defenders of experiment on animals provides an illustrative example of this dual function of experimental sacrifice. The billboards juxtaposed an image of a white rat and a small, white girl and had a large caption which read, “Who would you rat/her see live?” (Allen 2011). This, I argue, not only presents the rat as the stand-in for the human child, but also implies the threat; that without the sacrifice of animals, children will be sacrificed, either dying of illnesses ostensibly curable through experiments, or else taking the place of animals as the experimenter’s victims. This threat gets its force, as we saw above, from the history of experiments on humans from antiquity to the present (Luke 2007, 153–56).

To this point, Luke explains,

In vivisection, as in sacrifice generally – – support [for the practice] comes from the knowledge that the researcher’s tools of destruction could be applied to humans as well as to sacrificial animals. In a real sense, we live only through animal research because in the absence of animal subjects, vivisectionists would turn their deadly attention in our direction (as they repeatedly remind us). (Luke 2007, 134.)

Card ([1908] 2007), Ramee ([1893] 2007), Lynch (1988), and Luke (2007) lend historical and contemporary support to Kingsford’s (1916) argument that experiments on animals function as a type of sorcery, specifically as a ritual blood sacrifice. Science, according to Kingsford (1916) and Midgley (1992), is entwined with questions of theology and power, setting up ways of relating to the more-than-human world. Furthermore, thinking of experiments on animals as a type of sorcery helps one to see the laboratory as lively and enchanted, where things are not always as they seem.

### 3 Spectral Exclusions

An important step toward an enchanted ethical critique of experiments on animals is a rejection of a strict representationalist account of reality, including of scientific practices. A representationalist account of science is one that asserts that the scientist “discovers” facts through experimentation but, as we saw in the analyses of sacrifice above, scientific practice is more about creation than discovery. This creation, however, is occluded in strict representationalist accounts in order to naturalize the product of scientific construction as a discovery. Thinking of scientific practice in this way begins to bring into focus a myriad of networked agencies, not all of them human, that work together, not always willingly, to craft scientific practices and scientific fact. It also brings into focus the agencies which are foreclosed, those that become spectral through the types of decisions made, and actions taken, in scientific practice.

According to Barad (2007), scientific practice is an “intra-active” process that brings forth what is observed by the experimenter through a dynamic process of material arrangements and contestations through which phenomena emerge. In this “agential realist” account, Barad (2007) explains that these phenomena are the entanglement of scientific practice *and* findings. The findings cannot be disarticulated from the phenomena and its intra-active, *in-situ* becoming. According to Barad (2007, 139–40 italics in original), we make sense of the phenomena, this ongoing materialization in scientific practice, through a series of “agential cuts” which seek to disentangle “subjects” from “objects” and, in so doing, “enact a resolution *within* the phenomena of the inherent ontological (and semantic) indeterminacy.” Importantly, the distinction between subject and object is not inherent (for example, the experimenter as subject and the experimental animal as object); these distinctions are *made* within the scientific phenomenon. Such distinctions between humans and animals do not pre-exist their multispecies intra-action. Indeed, according to Barad (2007, 140), “it is through such [intra-active] practices that the differential boundaries between humans and nonhumans, culture and nature, science and the social, are constituted.”

Ethics, according to Barad (2007, 176, italics in original), means being responsible for “marks left on bodies” or the ways in which “bodies differentially materialize as particular patterns of the world as a result of the specific cuts and reconfigurings – – enacted.” Again, challenging the naturalized inevitability of the given scientific paradigm, and remembering that it may have been otherwise, Barad (2007, 178) explains, “Particular possibilities for (intra-)acting exist at every moment, and these changing possibilities entail an ethical obligation to intra-act responsibly in the world’s becom-

ing, to contest and rework what matters and what is excluded from mattering.” These exclusions haunt the laboratory and an enchanted ethic means being responsive and response-able to them. Exclusions make up part of what María Puig de la Bellacasa (2017, 1) calls her “posthuman constituencies” which includes “things, objects, other animals, living beings, organisms, physical forces, spiritual entities, and humans,” each of whom has a say in her speculative posthuman ethics. What Puig de la Bellacasa (2017) calls a “speculative ethic,” where one is ambivalently and contextually bound in caring relationships with these varied others, I call enchanted in that while it remains ambivalent and non-innocent, where caring demands are contingent and made in context, such an ethic is nevertheless open to the wonderous and awesome effects of being enchanted. These “posthuman constituencies,” spectral, animal, or otherwise, command our attention and ethical consideration. An enchanted animal ethic intent on heeding the call “for as well as possible worlds” and of getting a hold on experiments on animals, must listen to ghosts and ghostly exclusions, these past, present, and future revenants.

But a discussion of past, present, and future figures is misleading. According to Barad (2010, 244), “past, present, and future, [are] not in a relation of linear unfolding, but threaded through one another in a nonlinear enfolding of spacetime mattering.” This reading of quantum physics makes space for spectral presences from alternative temporalities as well as the “occult forces” of natural magic, esotericism, and other ways of knowing familiar to Kingsford yet marginalized by the dominant western scientific paradigm (Easlea 1980; Kuhn [1962] 2012). Indeed, according to Barad (2010, 261), space and time, like subjects and objects, are “intra-actively produced in the making of phenomena – – [neither] exist as determinate givens, as universals, outside of phenomena.” In this way, understanding the inextricable entanglement of matter and time, as well as science and politics, or the “marks left on bodies” (Barad 2007, 176), (re)politicizes science and its intra-active, multispecies worldings.

In her essay “What Flashes Up: Theological-Political-Scientific Fragments,” Barad (2017) further explicates the fundamental entanglement of time and space by reading quantum physics through the historical materialism of Walter Benjamin (1940), particularly his theses in “On the Concept of History.” According to Barad (2017), Benjamin does his own diffractive reading through his engagement with Marxism, the Kabbalah, and history. In Benjamin’s (1940, “Thesis XIV”) account, “time and justice are inseparable” and no more so than in “now-time” or “Jetztzeit” (Barad 2017, 21). “Now-time” “is shot through with the eternal – – time outside of time, other times that are not the this-time of the present – – flashing up in each moment” (Barad 2017, 21–22; Benjamin 1940, “Addendum A”). This flashing up functions as an explosion that opens

a discontinuity in time creating “a revolutionary chance in the fight for the oppressed past” (Barad 2017, 22; Benjamin 1940, “Thesis XVII”). This break in time functions as a type “divine violence,” or “a disruption of ongoing state-sanctioned violence” (Barad 2017, 23). Time flashed up for Kingsford too, providing her the opportunity for what she saw as her own act of “divine violence” in her occult campaign against experiments on animals.

In his collection on her life and writings, Maitland (vol 1 [1896] 2011, 259) recounts an experience Kingsford relayed to him from her time in medical school in Paris. Maitland writes,

[Kingsford’s] professor had forced her into a controversy about vivisection, the immediate occasion being some experiments of Claude Bernard’s on animal heat, made by means of a stove invented by himself – – to allowed for observations – – [of] animals while being slowly baked to death – – [Her professor delivered] a tirade against the sentiments generally of morality and religion – – Even the feeling which makes a mother weep over her child’s suffering he sneered at as hysterical, and gloried the prospect of the time when science and intellect should be utterly unrestrained by what people call heart and moral conscious – – Thus speaking, he had worked [Kingsford] into a frenzy of righteous indignation – – and seeing in Claude Bernard the foremost living representative and instrument of the fell conspiracy [of vivisection], at once against the human and the divine, to destroy whom would be to rid the earth of one of its worst monsters, she no sooner found herself alone than she rose to her feet, and with passionate energy invoked the wrath of God upon him, at that same moment hurling her whole spiritual being at him with all her might, as if with intent then and there to smite him with destruction – – making a spiritual thunderbolt of [herself].

Lighting that “flashes up” also plays a central theme in Benjamin’s historical materialism and Barad’s (2017) quantum reworking of spacetime mattering. According to Barad (2017, 36, italics in original), “lighting is a connective thread, a *luminous entanglement* – – a jagged/dis/continuous “moving toward” with innumerable interruptions.” This dis/jointed energetic movement among points, either weather-based or spiritual, enact a type of spacetime mattering with, sometimes profound, material and semiotic effects. In her creation of a spiritual thunderbolt which she shot across spacetime, a result of a flashing up of fury at the cruelty done to animals by Bernard, and the indifference and hubris of her professor, Kingsford, one might argue, enacted a type of “divine justice” thereby affirming the way in which space and time, matter and meaning, are shot

through one another, diffracted in a thick-present, a present that temporally and spatially is always already more than 'now,' that offers possibilities for radical political potentialities. The thick-present of now-time, shot through with the past and future, is also one haunted by ghosts, those "apparition[s] – – by which something lost, or barely visible, or seemingly not there – – makes itself known or apparent," (Gordon 2008, 8). To be haunted by these ghosts, then, "draws us affectively, sometimes against our will and always a bit magically, into the structure of feeling of a reality we come to experience, not as cold knowledge, but as a transformative recognition" (Gordon 2008, 8). A recognition that is, that the current state of things could be otherwise (Braidotti 2019, 166).

According to Barad (2010, 253), "Every concept is haunted by its mutually excluded other" and the practice of experiments on animals is haunted by its animal victims and human opponents who work(ed) to bring into reality a different world with different, life-affirming agential cuts for multispecies care and flourishing. An enchanted animal ethic mourns, listens to, and seeks to do right by these revenants, who exist in that uncanny, queer spacetime between the metaphorical and the material, as we work to both get "a hold" of experiments on animals and to resist these anthropocentric orderings of spacetime matter (Barad 2007).<sup>9</sup> Indeed, an enchanted animal ethic seeks to bring into reality new relations through new cuts responsive to questions of power and oppression. As Barad (2010, 264) reminds us, "Only by facing the ghosts, in their materiality, and acknowledging injustice without the empty promise of complete repair (of making amends finally) can we come close to taking them at their world." To do so we must, like Kingsford and Benjamin (1940), hold open the possibility for radical change in the thick-present, for actualizing a virtual future for multispecies flourishing.

#### **4 An Enchanted Politics of Grace**

As I have been arguing in this paper, I want to inherit the call "another world is possible" that, according to Pignarre and Stengers (2011), names the possibility of a world beyond the sorcery of capitalism. This would, then, involve envisioning a world beyond the sorcery of experiments on animals through the rupture opened up by Kingsford's occult conception of, and campaign against, experiments on animals. Understanding experiments on animals as a type of sorcery recognizes the enmeshment of science,

---

<sup>9</sup> As an example, Maitland ([1896] 2011 vol 1 & 2) recounts a number of ghosts and spirit-figures who sought to help him and Kingsford in their campaign against vivisection, mainly via communication with him and Kingsford through a planchette and in dreams and visions.

politics, and theology, crystalized together in the thick-now. Naming experiments on animals in this way also makes clear that a strict representationalist or empirical understanding of experiments on animals “kills politics” through the propagation of “infernal alternatives” (Pignarre and Stengers 2011, 15). Naming experiments on animals as sorcery helps us to get a hold on the practice, which, according to Pignarre and Stengers (2011), means seeing the immanent working of politics where before one only saw ‘infernal alternatives.’ Finally, understanding experiments on animals as sorcery opens up the possibility of an enchanted animal ethic which takes seriously a science that is entangled with theology and politics, and the potential for a science-politics-cosmology that affirms the inherent value of the more-than-human world.

To return to Kingsford, in place of vivisection and “materialist” science, Kingsford (1916, 157) champions what she calls “spiritual science” which affirms “the Unity of Substance” amongst all beings. Healers and scientists following this principle, argues Kingsford (1916, 157), “give the knowledge of that doctrine practical expression in universal sympathy with all forms of sentient being – – [and express] the duty of Love for all incarnations of the Divine Substance, and horror and reprehension of cruelty as such, whatever plea may be advanced for its practice.” According to Kingsford (1916, 162), the true healer holds that “no knowledge of value to man can be bought by the vicarious tears and pain of any creature soever”. Spiritual science, a type of benevolent sorcery, is opposed to both experiments on animals and attempts to divorce science from ethics and theology.

A spiritual science, or rather, a science that recognizes its entwinement with theology, politics, and ethics is, I argue, one that is re-politicized and therefore open to engagement and critique from those other than the minions under the spell of experiments on animals. This is a science that is democratic in its rejection of antidemocratic tendencies within the current scientific paradigm (Ephraim 2017; Kuhn [1962] 2012), including attempts to limit the types of critiques one may levy against scientific practices, such as experiments on animals (Birke et al. 2007, 75–110). According to Vandana Shiva (1985, 50), this anti-democratic undergirding in the biological sciences finds its footing in “the metaphor of “man’s empire over inferior creatures” rather than the metaphor of “the democracy of all life.” Importantly, according to Shiva (1985, 51), “The democratization of biology involves the recovery of pluralism of knowledge traditions,” such as knowledges from indigenous and third world peoples. Democratizing science means understanding the thickness of now-time and the radical potential for other ways of knowing and being. It also means knowing that “all material beings are susceptible to downfall – – [and t]his includes institutions, ideologies, imaginaries, and

affective states – – [All] are susceptible to change and impermanence” (Barad 2017, 63). The goal of an enchanted animal ethic is to enact this change.

A democratization of biology, and of science in general, invariably means a move away from the dominant paradigm of western, humanist science and toward other ways of knowing that are respectful and responsive to the needs and inherent value of non-humans. In a time of mounting environmental precarity, rising fascism, and zoonotic pandemics, an enchanted animal ethic needs to work to hold open space in the thick-present for the convergence of past and future visions for more just human-animal relations. For example, in her essay “Learning from the New Priesthood and the Shrieking Sisterhood: Debating the Life Sciences in Victorian England,” Hilary Rose (1984, 13) provocatively speculates “what biology and indeed medicine and culture might have been if the antivivisection movement had been successful.” Rose asks,

Would it, as [Francis] Power Cobbe – – suggested, simply redeploy that evident scientific creativity toward the construction of a different, non-cruel science? – – Might this have produced a biology to sustain health rather than a biology directed toward treating sickness? Would stopping the new hands from being trained in vivisection have made for gentler doctors, more concerned with their patients and less concerned with their publications? Would success have reduced the prevailing cultural endorsement to men, particularly professional men, that they can do anything they like to women and to animals? (Rose 1984, 13–14.)

Such questions are not fanciful or futile, they are, I argue, about recognizing the plurality of temporalities and possibilities crystalized in now-time. This is not about an escape from immanent life-and-death, sticky relations but rather about seeing the potential to bring other ways of being, relating, and knowing into being by actualizing this virtual potential for “as well as possible worlds” (Puig de la Bellacasa, 2017) and bringing these virtual worlds into the present. This means, according to Braidotti (2019, 156), building an “affirmative ethics as a collective practice of constructing social horizons of hope, in response to the flagrant injustices, the perpetuation of old hierarchies and new forms of domination.” In place of anthropocentrism and its co-constitutive and interlocking systems of domination and commodification, this envisages imaginatively resisting the current state of affairs by bringing into the present a post-anthropocentric future through a rearranging of time. This could mean looking to the past, including Kingsford’s life and the inclusive animal justice movement of late-Victorian Britain, of which she was a central part, and to the future, a future where humane, human-centered

research replaces experiments on animals. One would do this in order to bring about change in thick now-time, recognizing that both the past and future are already shot through our present. Towards actualizing the virtual present Braidotti explains,

At the ethical level this means that the conditions for political and ethical agency are not dependent on the current state of the terrain – – Instead, they are projected across time as affirmative praxis, geared to creating empowering relations aimed at possible futures. Saying ‘no’ to unacceptable aspects of the present conditions cuts both ways: it means both ‘I do not want this’ and ‘I desire otherwise.’ Ethical relations create possible worlds by mobilizing resources that have been left untapped in the present, including our desires and imagination. (Braidotti 2019, 166.)

Actualizing a post-anthropocentric future in the thick-present involves both a rejection of experiments on animals, a reliance on which both harms animal directly but also humans indirectly in its impoverishing, in terms of attention, funding, and expertise, *in-silico*, *in-vitro*, and other human-relevant scientific research, (“I do not want this”), and imagining multispecies futures based on egalitarian relations, (“I desire otherwise”).<sup>10</sup> One can do this through an engagement with eco-social movements that make space for the active passivity of a politics of “grace,” a letting be of others so that other entanglements may emerge and other agential cuts are enacted (MacCormack 2012, 2020). According to Michel Serres (qtd. in MacCormack 2012, 58), “Grace is nothing – – but stepping aside. Not to touch the ground with one’s force, not to leave any trace of one’s weight, to leave no mark, to leave nothing, to yield, to step aside.” Stepping aside, or leaving animals be, allows for new modes of agency and novel encounters to emerge in ways that are ethically significant but, significantly, not determined by humans or even human interests.

Grace is about becoming enchanted by the force of zoe, what Braidotti (2013, 115) understands in a vitalist, neo-Spinozist sense as “a posthuman yet affirmative life-force – – [which] rests solidly on a neo-Spinozist political ontology of monism and radical immanence – – engendering a transversal relational ethics.” For Braidotti (2013, 71), “zoe–egalitarian[ism] – – encourages us to engage in a more equitable relationship with animals – – [where] the vitality of – – [our] bond is based on sharing this planet, territory or environment on terms that are no longer so clearly hierarchical, or self-

---

10 For a brief discussion of some of these non-animal research methods see Oxford Centre for Animal Ethics (2018, 27–33).

evident.”<sup>11</sup> Understanding zoe in this way, as the intra-active and responsive life force of matter, unites science, theology, and ethics and overturns existing binary logics that devalue the more-than-human world and those humans thought to be closer to it. This is then, in many ways, an affirmation of the very type of spiritual science advocated by Kingsford (1916) that sees no neat demarcation between questions of science, ethics, or spirituality and instead brings all under the purview of a democratically engaged public.

An enchanted, grace-full ethic is about affirming joy through our multispecies relationships, coming together in “common notions” in the Spinozist, if not literal, sense (Bignall 2010, 89–90). Forming relations based on common notions means entering into “encounters [that] are mutually joyful: that each body is able to exercise its active power of existence and affective capacity; that one body is not destroyed or diminished by the other” (Bignall 2010, 89). Relationships based on common notions require that the inherent value of persons is recognized and affirmed: one is not used as a means to an end for another. These relationships are based on care and grace. The affirmation of joy that is coming together in common notions is mutual, contingent and, writes MacCormack (2020, 23 italics in original) “never imposes anthropocentrism on the non-consenting other of nature – – [because [i]t attends and listens, it hosts and gives, it is *careful*.” This non-anthropocentric care that is grace is, at least in part, realized, for MacCormack (2020, 102), through “ahuman occulture,” or what Kingsford may have called benevolent sorcery, that seeks other ways of relating that are empowering and responsive to questions of politics, justice, and spirituality. According to MacCormack (2020, 11), to be “ahuman” is to “forsak[e] human privilege through acts of ethical affirmation that open the world to the other and to difference,” Therefore, uniting “oc-culture”, the “reimagining and embracing of a decidedly fabulated form of spirituality” (MacCormack 2020, 102), with an ahuman politic seeks, like Kingsford, the ethical and political potential in an understanding of the world as spiritual, that is, lively, and thick with a continual unfolding of more life-affirming possibilities. Occulture, writes MacCormack (2020, 107), “seeks to change perception, to change the world, when the current modes of perception, activism and creativity may feel as if they are not doing enough or are not adapting as well as they could.”

In this way, we come full circle through an affirmation of an animal ethic that,

---

11 In *The Posthuman* (2013), Braidotti is ambivalent about animal ethics, including the ethics of experimenting on animals. In many instances, she seems to endorse the sacrificial logic forwarded by Donna Haraway, which obliquely condones experiments on animals, if not some of the most patently cruel and objectionable forms.

like Anna Kingsford, saw questions of science, ethics, and spirituality as radically entangled. Kingsford's occult understanding of, and campaign against, vivisection is echoed in contemporary material feminist, and posthuman, ethics, such as those explicated by MacCormack (2012; 2020), Barad (2007; 2010; 2017), Braidotti (2013; 2019), Puig de la Bellacasa (2017) and others who seek to overturn anthropocentric power relations, including in the sciences, through a renewed engagement with the ethical realities of a lively, agential world. The agency of matter, and our dynamic semiotic-material entanglement with it, underscores the inseparability of science, or any type of knowledge creation, from questions of ethics, politics, and theology. Most importantly, an enchanted animal ethic is immanently engaged with a dynamic, relational mode of grace-based activism that always seeks to actualize the virtual, and the desire that it could be otherwise (Braidotti 2019). This is undertaken through an awareness of the dynamic interplay of past, present, and future which opens possibilities for real change towards more life-affirming, multispecies relations. An affirmation of these joyful relations, expressed through an enchanted animal ethic, rejects and politicizes the instrumental use of nonhuman animals in experimentation and seeks to bring about new modes of being and knowing in the present through a grace-full praxis of enchanted resistance.

## References

- Adams, Carol J. 2010. *The Sexual Politics of Meat: A Feminist-Vegetarian Critical Theory. 20th Anniversary Edition*. New York: Continuum.
- Allen, Jane E. "Animal Rights: Scientists' Billboards Ask Whether You'd Save a Child or a Lab Rat," last modified 14 April 2011. <https://abcnews.go.com/Health/Drugs/animal-keresearch-billboards-pit-cute-girl-lab-rat/story?id=13371007>
- Barad, Karen. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham: Duke University Press.
- . 2010. "Quantum Entanglements and Hauntological Relations of Inheritance: Dis/continuities, SpaceTime Enfoldings, and Justice-to-Come. *Derrida Today* 3.2: 240–68. <https://doi.org/10.3366/E1754850010000813>.
- . 2017. "What Flashes Up: Theological–Political–Scientific Fragments." In *Entangled Worlds: Religion, Science, and New Materialisms*, edited by Catherine Keller and Mary-Jane Rubenstein, 21–88. New York: Fordham University Press.
- Benjamin, Walter. 1940. "On the Concept of History," trans. Dennis Redmond. Accessed Jan. 30, 2021. <https://www.marxists.org/reference/archive/benjamin/1940/history.htm>.

- Bennett, Jane. 2001. *The Enchantment of Modern Life: Attachments, Crossings, and Ethics*. Princeton: Princeton University Press.
- Bignall, Simone. 2010. "Affective Assemblages: Ethics beyond Enjoyment." In *Deleuze and the Postcolonial*, edited by Simone Bignall and Paul Patton, 78–102. Edinburgh: Edinburgh University Press.
- Birke, Lynda, Mette Brylad, and Nina Lykke. 2004. "Animal Performances: An Exploration of Intersections Between Feminist Science Studies and Studies of Human/Animal Relationships." *Feminist Theory* Vol. 5(2): 167–83. <https://doi.org/10.1177/146470010405406>.
- Birke, Lynda, Arnold Arluke, and Mike Michael. 2007. *The Sacrifice: How Scientific Experiments Transform Animals and People*. West Lafayette, Indiana: Purdue University Press.
- Braidotti, Rosi. 2013. *The Posthuman*. Medford, MA: Polity.
- . 2019. *Posthuman Knowledge*. Medford, MA: Polity.
- . 2006. *Transpositions*. Medford, MA: Polity.
- Butler, Alison. 2011. *Victorian Occultism and the Making of Modern Magic: Invoking Tradition*. New York: Palgrave Macmillan.
- Caird, Mona [1908] 2004. "The Inquisition of Science." In *Animal Welfare & Anti-Vivisection 1870–1910: Nineteenth-Century Woman's Mission*, Vol. 2, edited by Susan Hamilton, 82–105. New York: Routledge.
- De la Ramee, Louise. [1893] 2004. "Selections from The New Priesthood." In *Animal Welfare & Anti-Vivisection 1870–1910: Nineteenth-Century Woman's Mission*, Vol. 2, edited by Susan Hamilton, 265–81. New York: Routledge.
- Easlea, Brian. 1980. *Witch-hunting, Magic and the New Philosophy. An Introduction to the Debates of the Scientific Revolution 1450–1750*. Brighton: Harvester Press.
- Ephraim, Laura. 2017. *Who Speaks for Nature? On the Politics of Science*. Philadelphia: University of Pennsylvania Press.
- Gandhi, Leela. 2006. *Affective Communities: Anticolonial Thought, Fin-de-Siècle Radicalism, and the Politics of Friendship*. Durham: Duke University Press.
- Gordon, Avery. 2008. *Ghostly Matters: Haunting and the Sociological Imagination*. Minneapolis: University of Minnesota Press.
- Guerrini, Anita. 2003. *Experimenting with Humans and Animals: From Galen to Animal Rights*. Baltimore: The John Hopkins University Press.
- Jay, Nancy. 1992. *Throughout Your Generations Forever: Sacrifice, Religion, and Paternity*. Chicago: University of Chicago Press.

- Kingsford, Anna. 1916. "'Violationism,' or Sorcery in Science." In *The Credo of Christianity: Addresses and Essays on Esoteric Christianity*. Edited by Samuel Hopgood Hart. 157–69. London: John M. Watkins.
- Kuhn, Thomas S. [1962] 2012. *The Structure of Scientific Revolutions*. 50th Anniversary Edition. Chicago: The University of Chicago Press.
- Oxford Centre for Animal Ethics. 2018. "Normalizing the Unthinkable: The Ethics of Using Animals in Research." In *The Ethical Case Against Animal Experiments*. Edited by Andrew Linzey and Clair Linzey, 13–102. Urbana: University of Illinois Press.
- Luke, Brian. 2007. *Brutal: Manhood and the Exploitation of Animals*. Urbana: University of Illinois Press.
- Lynch, Michael E. 1988. "Sacrifice and the Transformation of the Animal Body into a Scientific Object: Laboratory Culture and Ritual Practice in the Neurosciences." *Social Studies of Science* Vol. 18: 265–89. Sage.
- MacCormack, Patricia. 2020. *The Ahuman Manifesto: Activism for the End of the Anthropocene*. New York: Bloomsbury Academic.
- . 2012. *Posthuman Ethics*. New York: Routledge.
- Maitland, Edward. [1896] 2011. *Anna Kingsford: Her Life, Letters, Diary and Work*. Volume 1. Cambridge: Cambridge University Press.
- . [1986] 2011. *Anna Kingsford, Her Life, Letters, Diary and Work*. Volume 2. Cambridge: Cambridge University Press.
- Midgley, Mary. 1992. *Science as Salvation: A Modern Myth and its Meaning*. New York: Routledge.
- Owen, Alex. 2007. *The Place of Enchantment: British Occultism and the Culture of the Modern*. Chicago: University of Chicago Press.
- Pignarre, Philippe and Isabelle Stengers. 2011. *Capitalist Sorcery: Breaking the Spell*. Translated by Andrew Goffey. New York: Palgrave Macmillan.
- Poort, Lonneke, Tora Homberg, and Malin Ideland. 2013. "Bringing in the Controversy: Re-Politicizing the De-Politicized Strategy of Ethics Committees." *Life Sciences, Society and Policy* Vol. 9 (11): 1–13. <http://www.lsspjournal.com/content/9/1/11>.
- Preece, Rod. 2011. *Animal Sensibility and Inclusive Justice in the Age of Bernard Shaw*. Vancouver: UBC Press.
- Puig de la Bellacasa, María. 2017. *Matters of Care: Speculative Ethics in More Than Human Worlds*. Minneapolis: University of Minnesota Press.
- Rose, Hilary. 1995. "Learning from the New Priesthood and the Shrieking Sisterhood: Debating the Life Sciences in Victorian England." In *Reinventing Biology: Respect for Life and the Creation of Knowledge*. Edited by Lynda Birke and Ruth Hubbard,

3–20. Bloomington, Indiana University Press.

Shiva, Vandana. 1995. “Democratizing Biology; Reinventing Biology from a Feminist, Ecological, and Third World Perspective.” In *Reinventing Biology: Respect for Life and the Creation of Knowledge*. Edited by Lynda Birke and Ruth Hubbard, 50–74. Bloomington, Indiana University Press.

Van Veen, Anne. 2020. “The Life of an XPA–mouse: A Posthumanist Approach to Becoming with Humans in Laboratory and Law.” *Trace: Journal for Human–Animal Studies* Vol. 6: 26–51.

Vyvyan, John. 1988. In *Pity and in Anger: A Study of the Use of Animals in Science*. Marblehead, MA: Micah Publications.