

# Introduction

## *Moral Entanglements in Experimental Animal Science*

“Why look at animals?” The critic, painter, and poet John Berger, widely celebrated for his attentiveness to seeing as a way of knowing, famously posed this question while pondering captive zoo and other creatures. Animals “are both like and unlike” humans, wrote Berger, and our encounters with them entail an exchanged gaze. Whereas the animal “does not reserve a special look for man . . . man becomes aware of himself returning the look” (1990, 13, 25). Across this “abyss of non-comprehension . . . [the animal’s] common language, its silence, guarantees its distance, its distinctness, its exclusion, from and of man” and “because of this distinctness . . . an animal’s life, never to be confused with a man’s, can be seen to run parallel to his. Only in death do the two parallel lines converge and after death, perhaps cross over to become parallel again” (14–15).

Experimental laboratory science necessitates specialized, interspecies encounters marked simultaneously by distance and intimacy, difference and similarity, and by distinct confrontations between humans and animals during those moments when animals die for science. As experimental subjects, lab animals occupy “parallel” lives in Berger’s sense; the intimacy of human-animal encounters in labs fosters troubling entanglements too. The premise that lab animals are simultaneously “like and unlike” us justifies their experimental use, yet the intimacy of quotidian lab encounters troubles the human ability to maintain boundaries of interspecies distance and distinctness. This premise springs from animals’ roles as research subjects: as proxies, animals endure procedures deemed too painful or dangerous for human subjects and, as such, animals are distinct from us. These same conditions elide human and animal bodies, the animal “model” approximating the human body and its associated physiological processes. Laboratory death further disrupts efforts to guard interspecies distinctness: many

experiments conclude with the “sacrifice” or killing of the animal, a foregone conclusion that may stimulate moral thought and action among the humans who labor with and alongside lab-bound creatures.

*Animal Ethos* is an anthropological investigation of the moral complexities of and associated responses to interspecies cohabitation in experimental medico-scientific research. As such, it is neither a study of animals per se nor a critique of lab animal care. Instead, like Berger, I employ human-animal encounters analytically, arguing that *through* animals one may access the workings of an otherwise obscured scientific morality. In other words, what do lab personnel “see” when they “look at animals” under their care, and how do these ways of seeing translate to moral ways of knowing and reimagining interspecies work? Of key concern to this ethnographic project are the informal and private understandings of the moral use of animals as research subjects among a range of lab personnel—including lab directors (known as principal investigators or PIs), their students and research staff, animal care technicians, and lab veterinarians. The counterpoint voiced by animal rights activists also informs this work.

Much has been written on codified, bioethical frameworks that shape laboratory practices. In an attempt to offset the paucity of other perspectives, *Animal Ethos* addresses the equally rich, yet poorly understood, realm of “ordinary” or “everyday” ethics (Brodwin 2013; Das 2012; Laidlaw 2014; Lambek 2010) in science, where serendipitous, creative, unorthodox, and self-reflexive thought and action evidence efforts to transform laboratories into moral scientific worlds. Of special concern to me are moments of ambivalence, where relatively clear-cut, standardized frameworks fail to answer deeper and more personal moral questions. I argue that ambivalence may stimulate introspection, shift perceptions of animals, and inspire lab personnel to reconfigure their behavior and that of their coworkers, too. These moral shifts are evident in their personal stories about, and their comportment and behavior with, research animals. In light of this, throughout this work I ask: What does the ethnographic tracking of quotidian—and, often, mundane—human action and thought tell us about how lab personnel remake their moral worlds? How might such an approach uncover hidden aspects of human-animal relations in science?

The ethics of care—manifest in human thought and action—is a daily preoccupation in experimental lab science. Within a bioethical framework of “animal welfare,” lab personnel must adhere to strict rules of conduct that mandate the humane treatment of animals. All lab personnel I encountered during this project were well versed in and carefully followed regulated, species-specific principles of animal lab use. *Animal Ethos*, though, is not a study

of research compliance. Rather, I am most intrigued by the contrast between regulated *ethical* behavior and the informal, serendipitous, and creative strategies that involved humans employ to bring lab animals into personalized, and humanized, *moral* spheres. To paraphrase Eduardo Kohn, of what significance are animals in shaping a moral life in science (2014, 460)? As I demonstrate throughout this book, all sorts of lab personnel engage in practices that reveal elaborate sentimental associations between humans and animals. Such practices transform animals from expendable research subjects or “data points” or “things” into prized and, sometimes, beloved creatures. Scientific discipline, the reframing of “matters of care” within a lab’s labor hierarchy (Puig de la Bellacasa 2011), and species preference all figure in this “remaking” (Lowe 2004) of animals for science. Whereas the field of bioethics might lack the tools to identify, uncover, and analyze associated unorthodox practices, quotidian morality defines a longstanding interest within anthropology. Thus, I seek in part to broaden the scope of bioethics—alongside interspecies concerns within science and technology studies (STS) and anthropology—by incorporating new understandings of the morality of care in animal experimentation. How, then, to transpose ongoing anthropological concern about ethical thinking within human moral spheres onto those whose very existence hinges on everyday encounters with other species?

A finding that unifies this work is that the affective power of animals—especially mammals—figures prominently in the reshaping of moral worlds in experimental science. Within this framework, ethics of care, interspecies intimacy, and empathy are significant anchors. Maria Puig de la Bellacasa (although writing of how to redirect theory, and not of laboratory worlds) offers important insights on the significance of “care” as an analytical category. As she explains, attentiveness to “care” enlivens considerations of what might be possible, how things could be, and how one might make a difference. As I elaborate throughout this work, how humans engage in their work with animals “involves not only detecting what is there, what is given in the thing [or, in this instance, the animal] . . . , but also [thinking about] what is not included in it and about what this thing [or creature] could become” (2011, 96). For Puig de la Bellacasa, “care” signifies “an affective stage, a material vital doing, and an ethico-political obligation” (9). In lab contexts, any, some, or all of these modes of response are possible. To such assertions, I nevertheless add this caveat: when set within an experiential framework, care is also—and always—a *moral* enterprise (see Kleinman 2006, 2012; Mol, Moser, and Pols 2010; Tronto 2009).

If, then, we embrace Puig de la Bellacasa’s assertion that attentiveness to “care” and “caring” bears possibilities of “re-affecting objectified worlds”

(97), the character and quirkiness of human-animal cohabitation in labs necessitate that the anthropologist be cognizant of the practices, ideas, and innovations that inform—or demonstrate—the vastly varied ways that “care” and “caring” are imagined in science. The polyvalent and elusive qualities of these terms figure in my efforts to detect moral thought and action. Intimate encounters with animals foster a host of responses: *empathy*, for instance, might just as easily redirect research design (Berns 2017; Berns, Brooks, and Spivak 2012) as one’s professional trajectory (Gluck 2016). Still other prominent possibilities fall beneath the aegis of *welfare*, manifested in enrichment practices where one strives to think like a monkey or a fish, sometimes, but not always, engendering a sense of transpecies *kindredness* (Franklin 2007; Haraway 2008). In other instances, the “reaffecting” of animals reconfirms the *self* as a moral being, defining notions of self-worth (see, for instance, Buckmaster 2015a) or demonstrating pride in one’s mastery of specialized skills, even in contexts that necessitate killing (Friese and Clarke 2012).

With these complex configurations in mind, *Animal Ethos* is organized around three analytical themes: human-animal intimacy, the dominant trope of “sacrifice” (the most commonly employed term for euthanizing animals), and serendipitous practices that uncover forms of animal preference and exceptionalism. One goal of this three-pronged approach is to avoid the polemics of asserting what is right or wrong, just or criminal, or kind or cruel, as typifies works that set activists’ condemnations of animal use against scientific assertions that animal experimentation spares and saves human lives. On such fronts I strive to remain neutral (and readers who seek guidance on how best to behave, respond, act, or think will be sorely disappointed). My stance springs in large part from the ethics of ethnographic engagement, informed by an understanding that suspending one’s judgment generates richer data and fosters deeper understanding. Throughout this work I found myself wrestling with an overarching question best phrased as follows: How do scientists think in moral terms about their work with animals when they go home at the end of the day? (Or, as activists might phrase it, How do they live with themselves, knowing what they do?) As such, my purpose is neither to justify nor to condemn animal experimentation. Instead, I focus on unscripted, personal, and often private understandings across a range of professional fields (from researcher and student, to animal technician and veterinarian, to activist) as a means to uncover and decipher the complex logic that informs, shapes, and transforms intimate, interspecies encounters.

As I demonstrate throughout this work, these sorts of moral entanglements have complex histories. In preparation for what follows in subsequent

chapters, this introductory chapter covers a wide swath of terrain, and so I pause here to provide readers with a rudimentary roadmap. This chapter comprises four overarching sections. First, in “Accessing Animal Science,” I offer a brief history of the project and the premises that inform it. In the second section, “Everyday Morality in Laboratory Practice,” I consider anthropology’s longstanding interest in morality as informing my own efforts to study quotidian thought, word, and practice in experimental science. Third, in “The Boundaries of Interspecies Encounters,” I situate my work on human-animal encounters in science within the broader field of animal studies (Waldau 2013); I then turn to the paired themes of animal care and welfare, which, I argue, are informed by the entwined histories of scientific research and animal activism. The final section, “The Parameters of Ethnographic Engagement,” includes an overview of the methodological approaches from which data were derived and concludes with a chapter-by-chapter summary of the book’s organization and scope.

#### ACCESSING ANIMAL SCIENCE

*Animal Ethos* marks my most recent ethnographic engagement with moral realms of science. Initiated formally in 2010, *Animal Ethos* builds on two previous projects: the first, *Strange Harvest* (Sharp 2006b), spanned thirteen years of research (1991–2004) and addressed the sociomoral consequences of cadaveric organ transplantation (or the human-to-human transfer of viable organs, technically known as allotransplantation) in the United States. The second—based within five anglophone countries<sup>1</sup>—involved a decade (2003–2013) of comparative research in two competing realms of highly experimental transplant science, xenotransplant (henceforth, xeno) science and bioengineering. Practitioners within each are intent on alleviating the chronic shortage of human organs and associated human suffering, and imagined solutions include deriving parts from animals for human use or fabricating “artificial” or mechanical devices (most notably for the heart) in ways that might one day augment or fully replace the need for parts of human origin (Sharp 2007).

As an ethnographer, I am fascinated by how quotidian processes within domains of science evidence moral thought and action. For instance, midway through the first project I was struck by the preponderance of widespread, contradictory, and often unspoken moral premises that pervade transplant medicine, in which organs extracted from the dead are valued for their capacity to rejuvenate sick and dying patients struggling with organ failure. Transplanted organs—though widely regarded by involved parties

as precious goods—are never openly commodified but, instead, are reconstituted through rhetorical refashioning as gifts that require no reciprocation. Whereas these transfers of much-needed body parts entail loss, intense grief, sorrow, and suffering, such sentiments—and talk of them—are obscured, silenced, and denied relevance by a host of involved parties who celebrate such body transfers as forms of rebirth.

I initially conceived the second project as an investigation of how xeno experts and bioengineers imagined the remaking of the human form. As I soon learned, specialists in each field had relatively little experience with human patients, which informed their respective imaginaries. I learned, too, that the day-to-day lives of experts in both fields were heavily populated with research animals. Animals figured prominently not only in research design, purpose, and outcome, but in how xeno scientists and bioengineers framed their work in distinctive historical, social, and promissory terms. Here, species mattered. Within xeno science, for example, simian and, more recently, porcine subjects proliferate, and the values assigned to each category of animal hinge on a species' perceived proximity to us as appropriate human models or proxies. Bioengineers, on the other hand, have long relied on ruminants (especially ewes and male calves). The presence of these animals in laboratories shapes an altogether different moral trajectory.<sup>2</sup> Baby bulls dominate engineers' accounts of their profession's history, how they imagine the field's promissory future, and their own personal life narratives too. In essence, prized calves map out a temporalized progression of a profession's mandate to eliminate human suffering and death. Together, these two previous projects define the substrata upon which *Animal Ethos* rests.

### *Boundary Work*

This arc of anthropological engagement with clinical medicine and science has taught me to be alert to boundaries because it is at such sites that professional and personal dilemmas are likely to surface and, thus, where moral imaginaries proliferate (Beidelman 1993; DelVecchio Good 2007; Tronto 2009). Of longstanding interest to me are the border zones that demarcate the living from the dead, where sanctioned thoughts, words, and deeds contradict others that are (often deliberately) obscured, silenced, or rendered taboo, and, most recently, exist in research domains marked by an entanglement of humans with animals. Whereas my first project was anchored by transplanted organs and my second was framed by inventive non-human alternatives, *Animal Ethos* is moored to the moral possibilities engendered by the human-animal divide that typifies experimental laboratory space. Three boundaries specifically frame this current project, as reflected in the

book's three main parts: interspecies difference and intimacy, care and death (or "sacrifice"), and animal generics and exceptionalism.

In light of these foci, several premises inform this study. First, if—as Joan Tronto (2009) asserts—boundaries are sites where moral dilemmas proliferate, then one must also be alert to obscured aspects of everyday life. I maintain that ethnographic engagement, in which associated methodologies are designed to uncover the deeper structures of quotidian life, is especially effective in such contexts. An investigation of scientific morality presents special challenges because, as noted above, experimental lab science (not unlike organ transplantation and still other realms of clinical medicine) lays claim to a specialized lexicon that can effectively erase competing sources of knowledge. For example, whereas emotional attachment may be an inevitable outcome of human-animal encounters in research, one learns early in one's career that affective responses are discouraged and, even, taboo. Death presents still other quandaries: although research animals die or are killed at the end of many experiments, death talk is strangely absent from laboratory contexts. In turn, whereas research procedures may be physically or emotionally painful for animals, these realities inevitably fall under the rubric of animal *welfare* but not *suffering*. These examples do not simply define unquestioned regimes of practice; as I demonstrate throughout this work, they also expose moral quandaries and spark moral action. In light of this, I follow the lead of Monica Casper and Lisa Moore: *Animal Ethos* strives to be an ethnography "of that which is not always observable" (2009, 10), and of the entangled themes of absence and presence (Bille, Hastrup, and Sorensen 2010) that pervade lab personnel's efforts to wrestle privately with moral principles, thought, and sentiment.

A second premise concerns a disciplinary boundary, involving an important distinction I make elsewhere (see Sharp 2013, 3–9, 15–19) between (bio) ethics and morality. As I am often told by lab-based researchers, codified, bioethical principles determine what can or should be done (or not done) in animal science; in contrast, "morality" does not belong within the scientific lexicon but instead is regarded as the purview of philosophy and religion. As a result, morality defines an elusive category of analysis. As I demonstrate, moral thought and action—manifested as personal, private, informal, and serendipitous—nevertheless proliferate in science. Whereas much has been written on the ethics of animal welfare, we know very little of quotidian moral thought in science. *Animal Ethos* is an effort to rectify this discrepancy.

This distinction between ethics and morality informs a third key premise. As my previous research demonstrates (Sharp 2009a, 2011b), highly experimental realms prove to be especially productive sites for investigating

morality precisely because associated thought and action have yet to be schematized under the regulatory apparatus of bioethics. As such, the quotidian dimensions of morality expose what otherwise remains a ghostly presence (Gordon 1997) of sorts in lab science. This stems from a lack of sanctioned vocabulary and concepts for speaking in moral terms about one's research endeavors. In essence, codified frameworks bear the power to dominate, obscure, and devalue informal, private struggles and concerns. Yet the presence of animals in laboratories—mammals especially, I maintain—frustrate blanket acceptance of ethical codes of conduct. *Animal Ethos* illuminates the productive power of interspecies encounters to provoke moral thought, introspection, and reflexivity.

#### EVERYDAY MORALITY IN LABORATORY PRACTICE

*The local stops at many stations; it is the slow train.*

*It does not race above ground but moves along it.*

*As it crosses the terrain it slows our gaze and concentrates our attention.*

*It allows us to see what is in-between.*

MICHAEL LAMBEK, "Catching the Local"

Morality, as an analytical category, has long preoccupied anthropologists, where localized, ethnographic research is driven by the desire to decipher the deeper meanings and structures of human thought and action.<sup>3</sup> The discipline has, nevertheless, witnessed an effervescent revival or "renewed vigor" (Keane 2014, 3) of theoretical interest in morality, especially within the last fifteen years or so.<sup>4</sup> *Animal Ethos* falls within a growing canon of specifically ethnographic projects that address what is variously known as "local," "everyday," or "ordinary" moralities and ethics (Brodwin 2013; Das 2012; Lambek 2010, 2011; Zigon 2008), in which analyses focus most keenly on contexts marked by ambiguity, uncertainty, or incongruity. The goal is not to find resolution based on widely accepted, sanctioned principles of conduct within a circumscribed community (as would be the objective, for instance, of a bioethics consultant). Rather, associated scholarship posits that quotidian experience invigorates moral responses. Indeed, resolution may not be possible nor, even, be an immediate goal, a situation Thomas Beidelman identified as the "moral imaginary" (1993) and Cheryl Mattingly, more recently, termed the "moral laboratories" of daily life (2014). An important point here, in the context of my own work at least, is not that resolution remains out of reach but that the wrestling associated

with moral conundrums is context specific, temporal, ever evolving (and, thus, rarely static) and, often, open-ended. These processes entail questioning, struggle, and self-examination, evidenced in quotidian life.

Throughout this work I draw a sharp distinction between “ethics” and “morality.” In medico-scientific contexts, I have found it helpful to situate the former within the field of bioethics, whereas the latter involves special forms of imaginative introspection. In the United States, bioethical behavior is informed by mandated training and regular (re)certification, and it is subject to inspection and oversight by regulatory bodies. (In animal research, this often involves the United States Department of Agriculture, or USDA, which inspects laboratories, and USDA-mandated Institutional Animal Care and Use Committees, or IACUCs, which are institution-specific ethics review boards). For the purposes of this study, bioethics defines the parameters of what one may and may not do in a lab (or to a lab animal). In contrast, moral behavior, I maintain, is creative and serendipitous, encompassing existential realms of experience (Jackson 2012) whose effects may loop back (Hacking 1995) and inform subsequent deeds and ideas. And whereas bioethical principles unquestionably define the boundaries and bedrock of professional behavior, throughout this book I am most interested in the quirkier realm of morality, where one encounters evidence of how a range of personnel within a lab’s labor hierarchy grapple with the complexities, paradoxes, and contradictions of “everyday” or “ordinary” practices that comprise experimental animal use.

This focus on the “ordinary” entails, by way of Michael Lambek’s metaphor, taking “the slow train” as a means to perceive the “in-between.” Ethnographic engagement necessitates sustained attention to the localized, quotidian, and mundane aspects of life in order to discern how people make sense of their worlds. Attentiveness to the mundane is especially well suited to the study of science, as exemplified by ethnographically inspired sustained engagement within the field of science and technology studies (STS) as championed by Bruno Latour, Steve Woolgar, John Law, and others (Latour and Woolgar 1979; Lynch and Woolgar 1990; Mol, Moser, and Pols 2010).<sup>5</sup> Latour exemplifies this approach in his essay “Circulating Reference,” within which he pays meticulous attention to the various ways that members of an interdisciplinary research team engage in studying a swath of Amazonian terrain, driven by a shared desire to determine whether the savannah or the forest is retreating. Together, they map out their findings not merely on, say, pieces of paper and grids of soil samples, but by transforming a café—along with its tables and chairs—into a map of the domain under study. In the end, their shared assessments hinge on a lowly earthworm whose subterranean

activities alter the soil and make it conducive to forest growth (Latour 1999). One encounters the same meticulous quality in Annemarie Mol's study of atherosclerosis as evidencing a "body multiple" (2002) and, again, in Mette Svendsen and Lene Koch's work in a Danish research lab, where their attentiveness to a range of quotidian practices reveals how premature piglets are sometimes vulnerable baby animals and at other times research objects, proxies for human neonates, data points, or deceased creatures ready for necropsy. Such painstaking approaches to detail expose otherwise obscured domains of scientific practice, such that laboratories emerge as complex, ontological projects whose entwined categories of knowledge and meaning are always evolving. In short, labs are moral worlds.

STS similarly exemplifies the power of being alert not only to people and their actions, but to *things*. This approach derives from early ethnographic studies. To realize this, one need only consult the canonical works on Trobriand society by Bronislaw Malinowski (considered the foundational ancestor of sustained ethnographic engagement) on the making of a canoe, the circulating items and trade partnerships that comprise *kula* exchange networks, or horticultural practices and associated magic (1922, 1935).<sup>6</sup> Nevertheless, a shift in recent years—unquestionably inspired by STS scholarship—has resulted in a new level of absorbed attention to material objects not merely as artifacts (made or designed by humans, for instance) but also as "actants" (whereby innovative action and associated, often emergent, knowledge are evidenced in networks that include both persons and things) (Latour 1987; Law and Hassard 1999). Igor Kopytoff's concept of the "biography" of things (1986) further enriches these methodological concerns. Taken together, such approaches enhance anthropological studies of science, where the "in-between" might encompass mundane practices, moral principles, *techne*, and animals, all of which might then transform analyses of everyday worlds of science.

### *"Figure and Ground" in Studies of the Everyday*

In her essay "On Space and Depth," Marilyn Strathern proposes the "commonplace technique . . . of figure-ground reversal" as an effective mode of anthropological analysis (and, I would argue, ethnographic engagement). According to Strathern, this approach "by itself simply draws on habits of perception. It may, however, be combined with certain conceptions of the act of interpretation itself. The result is then an oscillation between perspectives that appear to summon quite different approaches to the world" (2002, 88). As she explains (in ways reminiscent of Lambek's slow train), "If interpretation 'stops' movement in the attention to the movement around it,

then in that attention the world also appears full of stopped, singular . . . ‘things’ or ‘events’ or ‘relations,’” thereby “bringing entities, human or abstract, into play with one another” (2002, 92). This attentiveness to the “quotidian oscillation” of ground and figure fosters an analytical stance that is alert to “either depth or surface” (109).

The effectiveness of “localized” attention to figure-ground reversal is beautifully realized in Veena Das’s essay “Ordinary Ethics,” in which she tracks everyday evidence of the vagaries of human vulnerability (2012, 133). As Das explains, “In the low-income neighborhoods in Delhi . . . I came to recognize the delicacy of maintaining regard for others through the minutest of gestures” (135). An especially poignant example involves a woman leaving an upturned stool on a “threshold as a sign that she intended to resume [a neighborhood quarrel] . . . the next day,” once the men of their households left for work in the morning, because “it did not seem right to many women to confront a tired man who had braved the heat and dust of the streets to be confronted with an atmosphere of discord.” As Das underscores, women’s efforts to protect the serenity of home life were informed by an array of other moral principles (including deference to patriarchal household structure and the threat of domestic violence).

When Das foregrounds, in Strathern’s sense, the moral relevance of an ordinary, upturned stool, she proffers an important intervention pertinent to my own project. As she explains, “The possibility of speaking of ordinary ethics allows us also to think of the unethical as growing with the forms of life that people inhabit—it is, thus, not a matter of eliciting opinions about what behavior is considered ethical or unethical, or of cataloguing cultural practices on which we can bring judgment from an objective, distant position but rather of seeing how forms of life grow particular dispositions” (2012, 135–36). These “ordinary” “forms of life” are methodologically discerned through silent gestures, speech, and personal narration (136; see also Das 1997). As Jarrett Zigon, in turn, asserts, “special attention to forms of everyday language-use is essential to anthropological studies of local moralities” precisely because language “allows for the enactment of a certain range of possible moral worlds” (2008, 152). As we shall see, *Animal Ethos* is in many ways a study of how people talk about the everyday aspects of their work-related lives.

### *Sanctioned Speech and Lab Labor Hierarchies*

The analytical challenges associated with this “quotidian oscillation” (Strathern 2002, 107) between figure and ground, or “view . . . and counter-view” (89) of the “ordinary” (Das 2012; Lambek 2010), are soon realized in

the ways lab personnel talk about the worlds they inhabit. A sanctioned lexicon and associated taboo terms and topics together present a case in point. Sole attention to the former would effectively erase any evidence of the latter, and herein lies a conundrum that troubles my current study. Throughout *Animal Ethos* I strive to counteract this phenomenon by recognizing the synergistic relationship between absence and presence (Bille, Sørensen, and Hastrup 2010; Casper and Moore 2009; Leder 1990), paired with the understanding of “entities, human or abstract” as potentially “multiple” (Mol 2002). Rephrased, sanctioned words and actions might signal still others that are absent or prohibited. Alongside the linguistic and behavioral tropes of quotidian laboratory life, attention to the animals and objects that populate and clutter such worlds similarly reveals complexities of meaning and value that might otherwise be overlooked and, thus, obscured.

For instance, and as noted earlier, death talk is carefully monitored in labs. Many laboratory experiments are designed as “terminal,” entailing the killing of the animal in anticipation of necropsy. Detailed protocols mandate how, when, and by whom such procedures are performed, and they fall under the rubric of animal welfare laws, regulations, and guidelines at national, state, local, institutional, and disciplinary levels. How one speaks of and describes an animal’s death is likewise circumscribed by a fixed lexicon of permissible terms. One never speaks of “killing” animals; instead, they are “culled,” “sacrificed,” “euthanized,” or “terminated.” These terms can be context specific: one “culls” a “batch” of newborns, “sacrifices” or “euthanizes” a research subject, and “terminates” an undervalued animal. One’s station within a lab’s labor hierarchy might also direct word choice: in the course of my project, researchers generally preferred “sacrifice,” whereas animal technicians and veterinarians more typically spoke of “euthanizing” animals. Finally, the values assigned to particular animals or species affects one’s phrasing: one might speak of “terminating” many mice, but one would never apply this term to a favorite research macaque. This “quotidian oscillation” of specialized language reflects otherwise hidden moral understandings. As Das reminds us, too, taboos associated with various terms expose the “*unethical*,” where sanctioned and unsanctioned speech, when taken together, enable the anthropologist to access morality “with the help of a vocabulary of rules *and* infringement” (Das 2012, 134, italics added).

Fieldwork entails mastering key terms and associated vocabulary, and I soon found that speech registers varied as I moved within and across labor hierarchies. In response, I regularly asked interviewees to describe how and

when they used various terms for animals, procedures, and other aspects of their daily work. Death talk aside, a term that proved particularly thorny was “experiment(al).” As I describe later in this chapter and elsewhere in the book, animal activism looms large as a serious social threat to lab researchers, and lab personnel are cognizant of and resistant to the visual and rhetorical tropes employed by activists to sway public opinion. Like “kill,” “experimental” exemplifies a moral flashpoint of discourse because of its association with vivisection (a term that connotes the heartless employment of live animals in science).<sup>7</sup> Lab personnel are passionate about their work, and animal technicians (also known as “animal care technicians,” “caretakers,” or, far less frequently, “caregivers”) are especially outspoken in this regard. Some animal caretakers I interviewed loathed the term “experimental” and urged me to speak instead of “research” animals to foreground human-animal partnerships. Research scientists, however, regarded “experimental” as a neutral term that describes the essence of their daily activities and highlights the workings of a rigorous, scientific method.

Such terms might well be thought of as “deadly words” (Favret-Saada 1980) because when enacted in speech, they signal troubled moral domains. Throughout the course of writing this book, I have faced my own moral struggles over how best to describe what I witnessed. Word choice matters in a domain as politically charged and volatile as animal research. Within this book, the terms used are context specific in order to reflect the sentiments of the speaker. There are a few exceptions, however. First, animal death emerged as a pervasive theme in how lab personnel frame their activities in moral terms, and so I have chosen not to shy away from death talk. Second, in an effort to find some middle ground, I interchange “research” and “experimental,” with the understanding that I employ the latter term not as an accusation (akin to the activist’s stance) but in deference to the descriptive, or more neutral, connotations that researchers associate with this word.

Finally, labor hierarchies inform rhetorical practices because laboratory research entails both scientific methods and emotional or affective labor (Ehrenreich and Hochschild 2004; Hochschild 1983; Livingston 2012; Mol, Moser, and Pols 2010; Pols 2012; Puig de la Bellacasa 2011; Wendland 2010). Although activists assume that scientific studies are predicated on the objectification of animals, my lab-based research taught me early on to be attentive to the affective dimensions of human-animal encounters. Lab researchers, regardless of station, think of many sorts of animals in individual terms. As I discuss at length in subsequent chapters, naming practices

abound. A more rudimentary practice involves the use of pronouns. I rarely heard lab personnel describe an animal as an “it”; instead, gendered pronouns were the norm, even where large populations of what I reference as “generic” creatures were concerned (such as sprawling colonies of mice). I adopt this same practice throughout this book, referring to individual animals as “he” or “she.”

Finally, it is important to note that lab research is hard work, not merely because of the repetitive quality of many experiments or the long hours that animal feeding and cage cleaning entail, but because such activities so often require sustained, intimate contact across the species divide. Furthermore, labs are sites where *care*, and not merely *welfare*, is central to one’s daily work. A widespread understanding is that no one survives very long in a laboratory if he or she finds no joy in working with animals. Additionally, lab work can be a lonely experience because of the social stigma associated with animal experiments, and thus work dedication is crucial. These principles were taken seriously by staff and guided their quotidian practices in all of the labs where I was fortunate to conduct my own research.

#### THE BOUNDARIES OF INTERSPECIES ENCOUNTERS

Three broad categories—animals, morality, and affect—are of special analytical significance throughout this work; here I detail an associated overarching framework. In this section I first consider the question, What is a laboratory animal? I then show that this query is informed by historical processes pertaining to the use of animals as experimental proxies and associated lab animal welfare legislation. Although my project is firmly rooted in the United States, I briefly address relevant activities in the United Kingdom when they inform developments in the States. Finally, I consider the analytical significance of “suffering” with specific reference to regulatory concerns for animal “welfare” and consider how this concept is translated into practices of “care” through quotidian laboratory labor.

#### *Testing Human-Animal Boundaries*

In his edited volume *What Is an Animal?* anthropologist Tim Ingold urges readers to question the “capacities” we assign to our own species (such as tool making, symbolic and abstract thought, purposive action, or self-consciousness) in our efforts to assert our own “pre-eminence” in the world. As Ingold explains, “though humans differ but little from other animal species, no more than the latter differ from one another, that difference

has mighty consequences for the world we inhabit, since it is a world that, to an ever greater extent, we have made for ourselves, and that confronts us as the artificial product of human activity" (1988, 97). Although his intended audience consists of ethnographers and archaeologists who study the socially enmeshed lives of, say, pastoralists or hunters with a range of animal species, Ingold's provocations prove relevant to captive animals housed in research laboratories. This is because human "pre-eminence" is a foundational principle of lab research, where experimental animals are used specifically to avoid causing undue harm to (more highly valued) human subjects. In lab parlance, animals stand in as necessary "models" or proxies for humans and, unlike humans, animals' lives are expendable. Yet Ingold is helpful for other reasons. As an iconoclast, he is intrigued by borders and boundaries, which, to borrow from Evelyn Fox Keller, clearly "constitute irresistible lures" (1995, ix). That is, Ingold is drawn to human-animal distinctions not for their precision, but for their precariousness. These sorts of circumstances, I assert, are what allow lab animals to enable moral projects.

Whereas the rules that govern notions of human-animal difference may be regarded within their respective social contexts as reflecting cultural "truths," they also flag ambiguities, uncertainties, and anxieties. As anthropologists have long known (Bateson 1972; Douglas 1966, 1970; Evans-Pritchard 1940; Leach 1964; Lévi-Strauss 1963, 1969), interspecies boundaries are especially ripe in this regard because their integrity hinges on the ability to assert and maintain criteria that may well enable human "pre-eminence." Ingold's assertions are informed by long-established ethnographic projects, in which it is not unusual to encounter the blurring of interspecies boundaries, a sensibility widely documented, for instance, in pastoral societies. One discerns this in an assortment of disciplinary classics: E.E. Evans-Pritchard, for example, coined "the bovine idiom" to underscore how deeply enmeshed human lives were with cattle among the Nuer of southern Sudan (1940); June Nash has described in moving terms the affective dimensions of Quechua- and Aymara-speaking miners' attachments to llamas during underground ritual sacrifices in Bolivia (1973, 1979); and Ingold's own work exemplifies the intricacies of human-animal existence among Lapland reindeer herders (1980). A logic of interspecies intimacy will likewise be familiar to readers with pets or non-human companions, or to those who labor alongside working animals. Such relationships are not so much "encounters" as intimately entwined, morally inflected, and even troubled ways of being in the world (Haraway 2008).

Laboratory animals entail special problems, though, and a rendition of Ingold's question What is a *laboratory* animal? provokes us in other ways.

The literature that strives to answer such a question is replete with certain assertions and assumptions. Barbara Noske, an animal activist-anthropologist, describes the “object status” (1997, viii) of animals in commercialized contexts, asserting that lab animals are commodified creatures who occupy the outer edge of a continuum she dubs the “animal industrial complex,” a domain likewise inhabited by other creatures exploited by corporatized food production.<sup>8</sup> As Noske reflects on these contexts, she offers an insight relevant to my own project, namely, that “unlike the animal food industry, which to a certain extent remains accessible to the general public, animal research tends to take place almost completely hidden from the public eye . . . behind closed doors and thick walls” (1997, 35).<sup>9</sup> As we shall see, the hidden nature of animal labs bears with it repercussions not only for public perceptions, but also for its ability to inspire moral introspection among the humans who work there.

Although Noske writes as a defender of animal rights, her text helps us realize that lab animals can be so transformed that they no longer seem to be animals at all. This notion is captured elegantly by the concept of “biocapital” as first espoused by Sarah Franklin and Margaret Lock (2003) and subsequently adopted by others (see Cooper 2008; Rose 2001; Sunder Rajan 2006; and Helmreich 2008 on the term’s history). Whereas these authors are most interested in molecular forms of life via artificial reproductive technologies (ARTs) and genomic science, similar arguments prove relevant to industrially farmed creatures and still others employed in laboratory research. As Nicole Shukin explains, such animals, as biocapital, evidence the “rendering” of life through associated scientific processes, be it, say, a Fordist-style assembly line at a slaughterhouse (2009) or methods of breeding, handling, and labeling experimental creatures. Within this framework, lab animals are transformed into sources of or, more literally, become (bio)capital.

To grasp this notion, one need only consider the print and online catalogues that inventory the availability of a wide assortment of species that have undergone extensive genetic refinement over many generations. Such efforts are designed to generate reliable, mass-produced, and marketable creatures who are tailor-made for use in, say, diabetes, Alzheimer’s, cancer, or toxicology studies and whose sizes and temperaments may be fine-tuned so that they adapt relatively easily to laboratory conditions. Under these circumstances, one might indeed wonder whether we are speaking of “animals” at all. Within lab parlance certain creatures are regularly described in non-animal terms (as numbered occupants of a cage, data points, or lab subjects). Such practices are an important focus of analysis throughout this

book; as we shall see, however, this does not necessarily demonstrate their blanket objectification.

It is here that Donna Haraway's interventions are crucial. Although Haraway has long concerned herself with themes associated with biocapital, she has always simultaneously foregrounded intimacy as an inevitable, inescapable, and equally important consequence of human-animal encounters in science (2003, 2008, 2012, 1989, 1997). Haraway is known for her playful analyses of interspecificity, an approach that, as noted above, has inspired a plethora of projects that challenge the presumed impermeability of species boundaries and human preeminence. Yet such studies sadly overlook Haraway's assertion that interspecies encounters are all too often life-and-death matters that may well entail the suffering of both the animal and the human caretaker (2008). STS scholarship has similarly breathed life, so to speak, into laboratory domains, where sustained ethnographic engagement in the quotidian corners of science demonstrates how the lab itself is a richly complex world where a range of life forms toil together in the name of furthering scientific knowledge. And like Haraway, the authors of these works are well aware that scientific engagement frequently involves the "sacrificing" of animals for science (see, for instance, Arluke 1991; Birke, Arluke, and Michael 2007; Friese and Clarke 2012; Lynch 1988). Given this often inescapable premise, I admit that after focusing on animal lab research for the last decade or so, I bristle at playful celebrations of "multispecies" encounters (see Kirksy 2014). My concern is that their ludic tenor habitually obscures the deeper (or darker) dimensions of human-animal relations. Research laboratories are high-stakes domains because of the often precarious nature of experimental involvement for non-human creatures.

I am, nevertheless, intrigued by the possibilities engendered by interspecies intimacy (Sharp 2006a, 2011a, 2011c), a concern of long-standing interest in anthropology, as exhibited by now-classic texts (Douglas 1966, 1970; Evans-Prichard 1940; Leach 1964) and subsequently revived in studies of science (Franklin 2003, 2007; Haraway 2003, 1989; Helmreich 2009; Pálsson 2014; Papagaroufali 1996; Strathern 1985; Taussig 2004). Interests I share with these authors include how attention to animals can manifest moral insights and how such insights may well lie beyond an established anthropological fascination with kindredness. Whereas my previous research with bioengineers revealed a propensity to entangle human and calf genealogies in accounts of the discipline's history (Sharp 2013), such sensibilities did not emerge as a dominant framework for relating to other experimental creatures in other kinds of laboratories. Animals of all sorts nevertheless elicit affective responses among the humans who employ them in experiments.

As much of this book demonstrates, the toll that animal suffering takes on both lab animals and human personnel figures prominently in shaping moral thought and action. Efforts to locate sentiment, however, define a significant challenge because suffering and death are widely understood as taboo subjects of discourse.

These sorts of interventions are crucial to *Animal Ethos*. Unlike Noske, my goal is not to expose or document how science denigrates nature. Instead, I am most interested in how humans who work in labs question, wrestle with, and challenge a range of scientific assumptions and practices in ways that reshape established rubrics of welfare and care. As noted above, an especially troublesome reality concerns animal death as part-and-parcel of research protocols, a tenet of animal welfare, and a key concern in efforts to provide quality care. As I frame this analytically, I draw on the sociology and history of science (Birke, Arluke, and Michael 2007; Lederer 1992; Lynch 1988; Ritvo 1987), lab-based ethnographies (Friese and Clarke 2012; Svendsen 2015; Svendsen and Koch 2014), and the works of moral philosophers and bioethicists concerned with lab animal well-being (Donnelley 1989, 1992; Gruen 2013, 2015; Regan 1986). Together, these authors assist in deciphering experimental laboratories as moral domains.

### *Welfare, Suffering, and Care*

As should be clear by now, my purpose is neither to demean nor judge the experimental use of animals. Instead, associated moral claims help answer the question inspired by Ingold, namely, What is a laboratory animal? My research has taught me that lab animals are never solely reified creatures. Instead, they are many things at once: precious commodities; specialized research subjects; skilled working animals; sources of valuable data; and favorite, individual, and named beings. In Mol's sense, a lab creature is an animal "multiple" (2002). This sensibility emerges as one moves within and across lab labor hierarchies, which include senior research scientists, an array of students and trainees, lab-based veterinarians, and animal technicians or caretakers, each of whom morally (re)configure animals in distinctive ways.

In his essay "The Utility of Basic Animal Research," former zoo and current lab veterinarian Larry Carbone offers us a quasi-regulatory approach to this conundrum by asking what moral standards must exist to justify "the infliction of animal suffering" in experimental contexts. Carbone—known for his work on the entwined moral and regulatory dimensions of pain in animal science (2004, 2011)—explains that the paired principles of "speciesism" and "utility" must be demonstrated if animal research is to be

“morally justified.” As he explains, “(some) animals must be sufficiently *different* from humans in morally relevant ways to allow the morality of speciesism, and (some) animals must be sufficiently *similar* to humans biologically for cross-species extrapolation to have utility. Both conditions are necessary, and neither by itself is sufficient to justify animal experimentation” (2012, S12, italics in original). These principles are key to ethical animal experimentation in the United States, where animals stand in as models or proxies for humans, and where an evolutionary hierarchy justifies substituting animals for humans to protect the latter from harm. In turn, mammalian species—be they monkeys, dogs, or rats—approximate humans in a plethora of ways (in terms of, for example, physiology, metabolism, cognition, behavior, and emotion). What makes Carbone’s assertions unusual is his unapologetic use of “suffering.”

Joel Robbins has argued recently that suffering is an overworked and tired category of analysis within anthropology, a field dominated by the study of “the [human] subject living in pain, in poverty, or under conditions of violence or oppression.” This preoccupation informs a paucity of attention “on such topics as value, morality, well-being, imagination, empathy, care,” and others. Robbins argues for a shift “toward an anthropology of the good” and, more specifically, a focus on how “people organize their personal and collective lives in order to foster what they think of as good . . . and what it is like to live at least some of the time in light of such a project” (2013, 448, 457). My personal quibbles aside (as a medical anthropologist who has written on human suffering and taught courses on affliction for several decades), Robbins’s essay prompts several questions. To start, if we return to Carbone’s assertions, how should we approach contexts where causing pain and suffering is intentional? Or where the object of such action is not human but animal? What are we to make of high-stakes contexts where death is part of everyday life and work? If we embrace Robbins’s assertions and search for the “good,” what would define moral action? What might such an approach entail? What might it erase?

In response, I propose a compromise. Again, as Carbone explains, suffering is an inescapable aspect of laboratory experimentation; and although suffering and death do not figure in the official lexicon of laboratory research, they nevertheless assert a ghostly presence (Gordon 1997). Importantly, lab personnel remain simultaneously cognizant of animal “suffering” while striving for “the good” through quality, daily attention to animal well-being. This tension originates in the history of animal “welfare” and, in quotidian contexts, is evidenced in the “logic” of laboratory “care in practice” (Mol 2008).

*Animals as Human Proxies: Origin Stories*

In their study of industrialized clinical labor, sociologists Melinda Cooper and Catherine Waldby underscore the importance of recognizing historical conditions or “lineages” that facilitate what they reference as “the outsourcing of risk” (2014, 19). Although their target of analysis is the off-shore movement of clinical trials and reproductive surrogacy, their words prove relevant to animal laboratory research. Whereas Cooper and Waldby address conditions involving the movement of medical technologies and techniques via contracted relationships between inhabitants of affluent and poorer nations, laboratories present an alternative microcosm of sorts, where established human-animal hierarchies sanction the use of experimental animals in lieu of more valued human subjects. Where animals are concerned, the “outsourcing” of labor also entails its own scale of risk.

The number of animals employed in research is frequently cited in a wide range of venues—including animal activists’ websites, scientific publications, and welfare officers’ presentations—to underscore the vastness of animal involvement. Although figures vary widely, a summary prepared by the USDA for 2015 provides a sense of scale: the total number of animals who fall specifically under its purview sits at a precise 767,622, a figure that excludes rats and mice, creatures that, I am often told, comprise around eighty percent of all lab subjects.<sup>10</sup> An altogether different account provided by the American Humane Society approximates that “more than 25 million vertebrates . . . are used annually in research, testing, and education in the United States. Unfortunately, no accurate and comprehensive figures are available on how many animals are used—or for what purposes—in the United States or worldwide.”<sup>11</sup> An effort to determine how many humans occupy laboratories also proves elusive; needless to say, they are far outnumbered by their animal charges.

Reconstructing a history of animal experimentation in the United States is a complex affair, and I claim only cursory authority in this regard, deferring to a substantial canon produced from within the fields of the history of science, bioethics, and moral philosophy (Adams and Larson 2016; Blum 1994; Lederer 1992; Ritvo 1987). It is a relatively safe claim that, at the very least from within the historical trajectory of European and, more recently, American medico-scientific traditions, as long as humans have been intrigued by the workings of the human body, animals have inevitably been subjected to investigative procedures, many of which have been painful, invasive, traumatic, life-threatening, or fatal. As Nuno Franco explains, classic ancient Greek and Roman texts provide ample evidence that