

Unpatients: The Structural Violence of Animals in Medical Education

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Abstract

Physician training is an acculturation process in which students learn to emulate the practices, beliefs, and values of their professors. While many students are encouraged to express empathy and appreciation for their “first patient,” a human cadaver, medical education teaches students to devalue the lives and ignore the suffering of animal “unpatients” used for dissection and research. Teaching medical students to hurt animals is untenable morally and scientifically. This article utilizes three synergistic methodologies: a case study of a 2012 frog vivisection at Tulane University; an expanded theory of structural violence that exposes the methods by which animal suffering is made invisible and its infliction is thereby justified; and a pragmatic discussion of useful frames for health workers seeking to fight animal oppression. All three of these approaches are centered on reader action and activism.

Keywords: dissection, vivisection, medical school

For them, the difference between what happened and what awaited them anyway was one of timing. And for us the difference was visibility. This time, we had to watch.

– Matthew Scully, *Dominion*

Introduction

Physician training is an acculturation process in which students learn to emulate the practices, beliefs, and values of their professors (Cooke, Irby & O’Brien 2010, pp. 31-61). Cadaveric dissection is the preeminent rite of passage for first year medical students. Much attention is paid to this in student memoirs, in which students often try to cope with the

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dehumanization of their “first patient.” Poirier (2009, pp. 46-47) reviewed more than forty medical student memoirs and described the profound, disturbing, even existential moments many have when dissecting their first cadaver. Some do not acclimate to cutting into dead flesh and report having nightmares wherein, for example, they are dissected or their cadaver screams (Marcus 2003, pp. 370-373).

Another acculturation process receives little attention in medical student memoirs or academic journals, yet it shares the same goals, techniques, and symbols of cadaver dissection. This under-studied and under-analyzed ritual is the dissection or even vivisection of animals. As Paul Farmer notes, “an anthropology that tallies the body count must of course look at the dead and those left for dead. Such inquiry seeks to understand how suffering is muted or elided altogether. It explores the complicity necessary to erase history” (Farmer 2004, p. 308). This article hopes to do just that, beginning with a case study of violence against animals; following with a discussion of how violence is institutionalized in the medical profession; and concluding with suggestions for how health workers can frame animal rights for their patients and in their research. All three of these approaches are centered on reader action and activism.

First Unpatients

For most physicians, their first animal dissection occurs during middle or high school biology (Oakley 2009, p. 61). Thus, before the “first patient” cadaver of medical school, physicians-in-training will have “unpatients,” uncounted because they are “unhuman.”¹

Though precise statistics are unavailable, academic estimates from the 1990s indicate that six to twelve million animals are killed for pedagogical dissection (as opposed to research) in the United States each year (Oakley 2009, p. 60). Frogs are the most frequent victims of American high school dissections (King et al. 2004, p. 476). The following case report was selected for examination because of my own personal involvement and the case’s ability to represent what occurs in so many classrooms and laboratories.

At Tulane University in New Orleans, USA, on February 3, 2012, a group of future physicians (including the author) and their professor vivisected six frogs.² The students were studying the electrophysiology of muscle action potentials by recording the strength of muscle contractions. In previous weeks, the students ran computer programs to illustrate these

principles. Research has reported equal learning outcomes among live and computer- or textbook-based dissection alternatives, which generally cost less money (Balcombe 1997, pp. 23-24) – so there was no justification for killing or even using animals at all.³

Laboratory preparation involved taking un-anesthetized frogs between two fingers, sticking an ice pick-like probe through the back of the frogs' necks and stabbing it inside the frogs' bodies, the goal being to sever the spinal cord and (theoretically⁴) render the frogs insensate to pain. A laboratory technician performed the procedures. After the first frog's spine had supposedly been severed, the technician laid the frog on a metal tray and proceeded to the next one. A few minutes later, the first frog tried to jump, indicating that the spinal cord had not been severed, though the neck had been violently lacerated. The pithing (spinal cord severance) was done recklessly and exposed the animals to additional suffering. Furthermore, the technician mutilated another frog "in case anybody needs another." This was a horrifying procedure to watch. Many of the students were aghast and voiced their concerns, to no avail. Apparently, many of the students had not yet been taught that these frogs were unpatients, a matter to which we will return.⁵

After the frogs were unsuccessfully pithed, my group received one. The procedures carried out on the frogs required knowledge of anatomy, but the students received neither this nor training in animal care. We received a handout that instructed us to skin the frog's leg to expose the sciatic nerve, the largest nerve in the body (Figure 1). Our frog was clearly alive and gasped agonal respirations throughout the procedure. I asked the professor if it was necessary for the frogs to be alive and he replied that, though "the muscles would still contract even if the frog were dead, it is necessary for the frogs to be alive." In fact, if the first part of his statement was true, the second must be false and there was no justification for keeping the frogs alive or in pain.



Figure 1 from Frog Muscle Lab Manual (© BioPac 2000).

The frogs were moving about as they were skinned alive. The inadequacy of the pithing was pointed out to both the teaching assistant and the professor. The professor laughed when he saw a frog moving and told us to place metal rods through its flailing arms, essentially telling us to crucify the frog. He did not euthanize the frog or even attempt to perform the correct paralyzing technique. He stated that “frogs do not feel pain like we do.” There is no evidence to justify such an extreme contention, and a reasonable scientific assessment would lead to the opposite conclusion. Indeed, the vivisection was premised on the similarity between human and frog physiology.

We proceeded to flay the living frog, expose the sciatic nerve, and attach electrodes and a force transducer to the frog.⁶ Since our frog was not paralyzed, the muscle and nerve of interest were undergoing spasmodic contractions, rather than the large, idealized, artificially-induced contractions that were to be measured as the goal of the lab. Not only was the frog feeling the vivisection, this fact totally invalidated the data we were collecting. Students in another group inadvertently severed the frog’s femoral artery and that frog bled to death on the dissecting tray.

Yet it was not stopped. The spectacle lasted for ninety minutes. The professor made no attempt to euthanize the frogs once groups were finished with their work. I asked the teaching assistant if I could kill the frog, and she said yes. I ended the suffering as quickly as possible by cutting his or her brain apart. She then informed the rest of the students that the more “humane” way to kill the frogs would be to cut the throats and sever the carotid arteries. I left.

Institutional Action and Reaction

The only reason to write this article is to investigate the institutionalization of violence in medical schools and to spur others to action. What follows is a recounting of how institutional pressure can be brought to bear to help animals. Activists should use all resources at their disposal. One of these is the law, which, as we shall see, has its limits.

Federal laws govern the treatment of animals at research institutions receiving federal funding. The repercussions for infractions can be severe for a university, up to and including losing National Institute of Health (NIH) funding (NIH 2012). To quote the NIH guidelines (2013), institutions are required to:

- ensure that individuals who use or provide care for animals are trained and qualified in the appropriate species-specific housing methods, husbandry procedures, and handling techniques;
- ensure that research staff members performing experimental manipulation, including anesthesia and surgery, are qualified through training or experience to accomplish such procedures humanely and in a scientifically acceptable fashion;
- provide training or instruction in research and testing methods that minimize the number of animals required to obtain valid results and minimize animal distress;
- ensure that professional staff whose work involves hazardous biological, chemical, or physical agents have training or experience to assess potential dangers and select and oversee the implementation of appropriate safeguards; and
- ensure compliance with any initial and continuing education regarding State requirements for the licensing of veterinary or animal health technicians.

I believed that the first three of these had been violated and reported it to the university's Institutional Animal Care and Use Committee (IACUC). Reaction was slow until I wrote again to say that if nothing was done, I would take the matter to somebody who would be interested. An investigation was quickly opened, and the official apologized for being out of town. I recounted the events and was assured in writing that "any individual who wishes to express to any official of the administration any concern that he/she may have regarding the animal care and use program may do so without the fear of reprisal." A later email assured me that I would remain anonymous, as a professor might be displeased with a whistleblower.⁷

Officials noted in emails that the chair of the department, the chair of the university's IACUC, and the federal Office of Laboratory Animal Welfare had been notified. Subsequent course vivisections were put on hold, and the professor was asked to respond to the charges in writing.

I soon received another email outlining the steps that had been taken. The committee found that the vivisections violated animal use guidelines. The next week, the students in the class and two officials from the IACUC were given a presentation by the professor in which he explained his errors and provided proper training in frog anatomy and care (if mutilating and killing frogs can be considered "care"). He, not a technician, would now perform the pithing and would euthanize the frogs immediately after assignment completion.

The class continued with a frog heart lab (Figure 2). The goal was to demonstrate the electrical conduction system of the heart, which is cheaply, easily, and non-invasively seen in human EKGs.



Cut through the pectoral girdle to expose the heart in the pericardial sac.

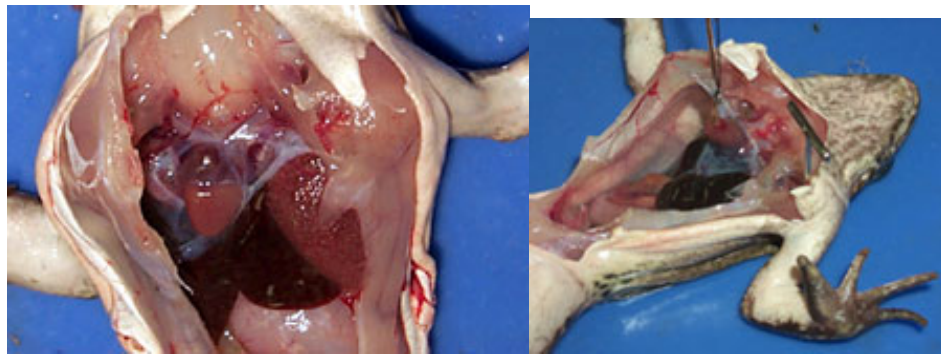


Figure 2 from Frog Heart Lab Manual (© BioPac 2000).

I requested an alternative learning experience. To his credit, the professor permitted a literature review covering the same physiological mechanisms and time frame of the lab. No retributive action was taken. It seems, then, that reporting an animal use violation did diminish suffering. These palliatives were far short of what I had hoped for and what is ethical. However, they followed the law, which showed itself to be useful in bringing about some level of change.

Nine states (California, Florida, Illinois, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, and Virginia), as well as numerous universities and local school boards, prohibit mandatory dissections and allow for student choice. California was the first state to pass such a law and arguably did so in response to tenth-grader Jenifer Graham. Graham had received a failing grade for conscientiously objecting to dissecting animals. She and her mother filed suit on religious freedom and anti-discrimination grounds. During litigation, the California legislature passed a student choice law, and Jenifer performed an independent study in lieu of dissection.

The case was settled in 1990. Her mother's efforts led the Animal Legal Defense Fund to set up a national Dissection Hotline, which has many tools for student action.⁸ Similar suits have been filed and settled before the constitutional merits have been decided, illustrating an avenue for potential activism (Kramer 2006-7). It should be noted that even when opting-out is mandated by law, its availability is not usually mentioned by teachers (Balcombe 1997). While the law provides some means of resistance, then, it is often not accessed.

Acculturation to Structural Violence

Johan Galtung (1969) coined the term "structural violence" to refer to "indirect" violence as opposed to "direct" violence committed with arms. Although direct and indirect forms of violence are often interrelated, one can further conceptualize structural violence to include all systemic forms of oppression: poverty, racism, patriarchy, and so forth, which are evident "as unequal power and consequently as unequal life chances." Not to add speciesism to this list is to exhibit our own biases, ones that are perhaps even more deeply entrenched than the rest.

Of course, vivisectionists actually lacerate, flay, and execute defenseless creatures – direct violence, in Galtung's (1969) parlance – but indirect violence to animals is perpetrated via the ideology of speciesism and is precisely what enables such direct violence. To truly redress the injustices foisted on non-human animals requires dismantling the intellectual superstructure that institutionalizes structural violence (Marcus 2005, p. 220). Assaulting theoretical justifications for cruelty is a task suited to physicians and other medical personnel for two reasons. First, they are culturally vested with the moral authority and academic training to resist and document abuse. Second, they are chiefly responsible for *creating* and maintaining the tools and ideology of speciesism and the abuse it spawns, at least in medical education, for animal cruelty is a constant throughout the long training periods of all biologists, from children to graduate students to professors.

In the foundational text of modern science, *Discourse on Method*, published in 1637, Descartes describes animals as "soulless automata" and "beast machines," a perception which leads to the following enlightened hobbies, as Jean de la Fontaine describes them (Kimbrell 2010):

There was hardly a Cartesian who didn't talk of automata....They administered beatings to dogs with perfect indifference, and made fun of those who pitied the creatures as if they had felt pain. They said the animals were clocks; that the cries they emitted when struck were only the noise of a little spring which had been touched, but that the whole body was without feeling. They nailed poor animals up on boards by their four paws to vivisect them to see the circulation of blood. (pp. 35-36)

Not much has changed, as we shall see.

Recent opinion polling demonstrates a remarkable discord between biomedical researchers and the public on the ethics of animal experimentation. In a poll of life science professionals, 92% agreed that "animal research is essential to the advancement of biomedical science," while only 3% disagreed (Cressy 2011). The views of the American public are much different. In a 2010 Gallup poll, 59% supported and 34% opposed experiments on animals (Gallup 2010). What might explain this disparity?

One answer to this question is that the lifelong acculturation process of medical education encourages animal cruelty. Oakley (2009) summarizes an account of reticent children's resorting to barbarism over a single dissection:

One study showed that a desensitization process can occur during a dissection. The study, which examined sixth-grade students' behaviours [sic] during the dissection of fetal pigs, found that many students appeared to become hardened to the procedure as it progressed, describing themselves as becoming "immune" or "adapted" to the situation. Toward the end of the dissection, some students had progressed from initial apprehension about dissecting the animals to outright mutilation of them: students were observed plunging dissection tools into pigs' heads and bodies, and decapitating the animals and parading their heads around the classroom. (p. 61)

Though certainly dissection is different from vivisection, Dorian and Arluke (1997) view fetal pig dissections by middle-schoolers as the first step in life science education towards viewing animals mechanistically. Furthermore, there is much suffering even in this process, as fetal pigs are taken from slaughtered sows.

A drastic ethical change in attitudes towards the use of animals was also found in first-year medical students during their participation in dog vivisections, which led from reluctance to rationalization and even pleasure (Arluke & Hafferty 1996). On the other hand, qualitative studies have demonstrated that animal dissection weeds out those, largely female, who feel greater empathy for animals and might otherwise pursue medicine (Capaldo 2004). Similarly, a Swedish study noted striking differences in views on animal research among students on other professional paths outside the sciences (such as law), with much greater support among future life scientists (Hagelin, Hau & Carlsson 1999).

For medical students, the responsibility and struggle to empathize with patients is perhaps the most discussed aspect of physician identity, comprising nearly ten thousand articles in the PubMed database (Poirier 2009, pp. 156-8). But attempts to discern empathy for animals in medical student memoirs will reveal little more than silence or, more optimistically, a vacuum to be filled.

Animal experimentation is not a topic seen as worthy of discussion in Poirier's (2009) study. Nevertheless, at least one of the authors in her study does include two pages that just barely begin to engage (only to quickly disengage) with empathic responses to animals. Craig Miller (2004), writing as a surgical resident, pens the following:

There's a certain subset of the radical-types that I call "fuzzy animalians." These are the mostly-female vegetarian-types (by the way, what about the rights of lettuce? The head was alive before it ended up doused in vinaigrette in a wooden bowl!) who complain loudly about the mistreatment of anything that's cute and/or furry – hamsters, baby seals, etc. – but always scream for someone to step on whatever spider crosses their path. Then they say (and actually believe) that they are defenders of animal rights! I guess to them only a critter with fur or feathers has rights; spiders and cockroaches only have the right to meet the bottom of a Birkenstock! (p. 99)

Students become the next generation of teachers. In a survey of 5,000 high school biology teachers, 98.8% reported dissecting animals during their own education. 72% contended that dissection "is a valuable part of school biology education," while, surprisingly, 66% believed students should be offered an alternative to dissection (King et al. 2004, pp. 480-481).

Finally, disregard for animals is evidenced even in the highest statement of values of prestigious professional societies. Consider the American Psychological Association's (2011-2) guidelines for ethical animal experimentation:

Experimental procedures that require prolonged aversive conditions or produce tissue damage or metabolic disturbances require greater justification and surveillance. These include prolonged exposure to extreme environmental conditions, experimentally induced prey killing [sic], or infliction of physical trauma or tissue damage.⁹ An animal observed to be in a state of severe distress or chronic pain that cannot be alleviated and is not essential to the purposes of the research should be euthanized immediately.

Reading these standards makes one wonder if any abuses would be prohibited and what insight experimental prey killing—and the induction of animal psychological suffering--could possibly have for the amelioration of human psychological suffering.

Framing Animal Rights for Physicians

Social movement participants coalesce around fluid identities in a dynamic socio-psychological process that sociologists call “framing,” which utilizes changes in repressive contexts in order to increase movement support. Organizers initially join together with similar grievances. They then frame the movement, or construct its ideology around shared enemies, goals, symbols, and tactics. This identity is designed to “inspire and legitimate” movement participants, as well as to unite them. Uniting around an ideology facilitates action, engenders trust, and fosters commitment of movement participants (Benford & Snow 2000).

Framing also constructs a public identity to advertise to those outside of the movement. This public identity can be disparate from the internal identity that movement participants proffer as their own motivation. Promulgating a different public identity is a strategy to garner support from people outside of the movement who would not usually support it. Or, the “true” ideology may be repressed because of laws or social norms (Oliver & Johnston 2000). This section will further describe frames useful for health workers.

For physicians, the paramount frame of concern is the physician-patient relationship. Since duty to patient comes first for the physician, there is no balancing act between patient and

animal welfare per se. It would be a serious breach of professional conduct if a physician were to suggest a course of action for a patient because of the physician's feelings about animal rights. However, compassion for humans is congruous with compassion for animals in that harming animals is detrimental to human health. This is why physicians concerned with animal rights must focus on the health effects of meat.

Heart disease and cancer are the two largest killers of Americans. It thus seems appropriate to demonstrate the relationship between health outcomes and animals. Thorogood, et al. (1994, p. 1669) conclude that there is a "roughly 40% reduction in mortality from cancer in vegetarians and fish eaters compared with meat eaters." Specifically, red meat consumption is correlated with higher rates of colorectal, esophageal, liver, and lung cancers (Cross et al. 2007). Thus the American Institute for Cancer Research recommends that individuals limit their consumption of red meats and avoid processed red meats entirely (2010, p. 18). The American Heart Association (2011) states that "many studies have shown that vegetarians seem to have a lower risk of obesity, coronary heart disease...high blood pressure, diabetes mellitus and some forms of cancer." The Association advocates replacing red with lean meats, while limiting processed meat (bacon, hot dogs, sausage, etc.) (Lichtenstein et al. 2006, pp. 83-85). Unfortunately, even basic health information can easily be drowned out with the perilous lies and sophisticated distortions of the meat industry, which has scuttled governmental prescriptions to eat less meat for more than forty years (Nestle 2007, pp. 38-60). The American Heart Association might not be able to counteract McDonald's propaganda, but physicians can.

Many health workers are encouraged to harm animals for the sake of research and human progress. But the unavoidable pain and suffering in some fields of animal research might not be as promising as some assure us. Of the almost one hundred and fifty clinical trials of anti-inflammatory agents based on mouse studies, not one has succeeded in humans (Seok et al. 2013). Furthermore, the researchers report that there is essentially no statistically valid relationship between the changes in gene expressions of mice and humans suffering burns, trauma, or sepsis ($0.00 < p < 0.10$). Interestingly, a reporter discovered that when this review was submitted to *Science* and *Nature*, it was rejected. A lead author noted that "reviewers did not point out scientific errors." Instead, "the most common response was, 'It has to be wrong. I don't know why it is wrong, but it has to be wrong'" (Kolata 2013). As we have seen throughout this article, some scientists, in the ostensible name of science, reject science when it comes to the

treatment of animals. Researchers on the inside of the apparatus of animal exploitation can prevent great suffering for both animals and human patients if more appropriate models of human disease are used.

Conclusion

Although compassion is arguably the most vital of a physician's attributes, a myriad of studies report that the peak of physicians' concern for patients is at the outset of medical education, with a steady decline thereafter (Cooke, Irby & O'Brien 2010, p. 99). Many medical students have written eloquently of their first cadaver dissection, but when we look to their opinions on animal vivisection, we often see scientists' callousness and disregard for life itself.

Recognizing the emotional toll that cadaver dissection can take, some educators have instituted journaling activities concurrent with human dissection (Poirier 2009, pp. 161-162). One professor has students compile a mock case report of their "first patient": where she or he worked, how she or he lived, and so on. Another invites a chaplain to a Service of Reflection and Gratitude for students wishing to grieve or give thanks before the remains are cremated (Carter 1997, pp. 214-215).¹⁰ These various rituals, in which students create "histories" for their patients and also acknowledge their patients' deaths, help future physicians cope with their feelings and anxieties over using corpses. They are also attempts to address—and reverse—the decline in empathy physicians experience throughout their education.

Like cadavers, animal unpatients cannot speak, they cannot organize, they cannot revolt, they cannot overthrow. Yet, unlike cadavers, these unpatients live—and are killed—at the hands of healers. Physicians are given the training, freedom, privilege and, less frequently, the resources to work at the limits of life and death (Farmer 2005, pp. 157-158). However we read, write, and act, it is vital to keep the suffering and liberation of the voiceless at the forefront of our minds. The enormity of the task means there are many more avenues for attack. This article has suggested several.

The structural violence of medical education, which perpetuates both indirect and direct violence, is only one facet of the panoply of crimes committed against innocent animals. The character of speciesism should be familiar to any who know, witness, or study injustice. Does meaningful social justice not also include animals, for whom Nobel laureate Isaac Bashevis

Singer wrote, life “is an eternal Treblinka” (1982, p. 271)? If so, then meaningful social justice demands that we ease the suffering of animals, and meaningful medicine must be to true to its call to, at the very least, do no harm.

Notes

¹ This is derived from “unpeople” in Curtis (2004).

² I have kept others’ names confidential. To quote John Robbins (2001): “My criticism is not with the people who eat an ice cream cone, or a bowl of yogurt, or enjoy some cheese. My criticism is with the dairy industry for putting out ads that are deceptive and untrue, and that trick people, and do so quite intentionally” (111).

³ There are many free digital dissection tools online, as a Google search will reveal.

⁴ There is no scientific way to gauge pain in those who cannot communicate. As Mogil (2009) notes:

Human self-ratings of pain, using both questionnaires and scales, are reliable, accurate and versatile for the measurement of both experimental and clinical pain. Nonetheless, the subjectivity of these measures has led to a decades-long search for surrogate biomarkers. To date, no objective surrogate with acceptably high sensitivity and specificity has been found and independently replicated (283-294).

Experiments designed to cause pain are undertaken “ethically,” in spite of the absence of scientific validity. And with regard to this laboratory, cutting the spinal cord leaves the head and neck sensate to pain in humans and presumably in other animals.

⁵ A survey of middle and high school students found that 48% objected to animal experimentation (Oakley, 2009: 61).

⁶ The electrodes produced muscle contractions, much as a defibrillator shocks the heart, while the force transducer measured the strength of the contraction.

⁷ Retribution is a common concern: only 3-5% of students performing dissections voice objections, while 30-70% object in general, depending on how the survey question is phrased (Balcombe, 1997: 22-23).

⁸ The National Dissection Hotline can be reached at 1-800-922-FROG. There is also an online portal at the National Anti-Vivisection Society, http://www.navs.org/site/PageServer?pagename=ain_edu_dissection_hotline.

⁹ This sentence was removed from the guidelines sometime between May 2011 and May 2012. An email to the American Psychological Association seeking comment was not returned.

¹⁰ Tulane Medical School has a similar ceremony each spring.

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