Caring Bodies:
Cadavers, Technicians, and Hidden Labor in U.S. Continuing Medical Education

Stephanie Cruz

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Reading Committee:

Janelle S. Taylor, Chair

Marieke van Eijk

James W. Green

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Stephanie Cruz

University of Washington

Abstract

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Stephanie Cruz

Chair of the Supervisory Committee:
Janelle S. Taylor, PhD
Department of Anthropology

Human bodies are fundamental work tools in medical education. They are widely used, and indispensable, in the training of students, clinicians, and in biomedical research. However, contradictions abound in the use and exchange of human tissue. Human bodies are generally understood to carry moral worth and command respect, consideration, and care, but they are nonetheless transformed into commodities by institutional practices that depend on a steady supply of human tissue. Though rarely acknowledged, a system of exchange for bodies does exist. The deeper structures (as policies, history, and performance) of how or why human bodies are necessary, however, are rarely considered. By using a commodity chain analysis to examine cadaver use in continuing medical education (CME), this research explores multiple perspectives on, and practices involving, the use of cadavers in U.S. medical training and research institutions. Through ethnographic fieldwork in body donation organizations and CME training centers, this study explores how human bodies are exchanged and transformed, both materially and at the level of meaning. Particular attention is given to the perspectives and the daily work practices of those who prepare and care for cadavers and, in the process, transform the body. The research brings attention to tensions inherent to operations that are unknown but much relied upon by the public, by focusing on the relationship between care, commodification, and cadavers.

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Dedication

Para Martha y Gilberto.

Esta tesis no fue posible sin el apoyo, amor, y sacrificio de mi familia, en especial de mis padres.

Esta tesis se la dedico a ustedes. Pa’ la familia peluche.

And to those whose labor on and for bodies goes unnoticed. This dissertation is for them.

Chapter One: Introduction

Because I could not stop for Death –
He kindly stopped for me –
The Carriage held but just Ourselves –
And Immortality.

—Emily Dickinson, Because I Could Not Stop for Death, 1960

Those head course days started off early in the morning. The courses were always day-long events. Technicians had to be there early to set up the lab for the ensuing maxillofacial training. Surgical residents from multiple residencies would show up to the training laboratory to learn different techniques to address a series of issues associated with treating trauma and congenital issues of the face and neck. The residents present were from plastic surgery, otolaryngology, and orthopaedics. Their instructors changed, sometimes they were attending physicians from otolaryngology, sometimes from plastic surgery. The course was often industry sponsored, or in the very least, there was a representative from a medical device company present. One of the techniques the residents were learning was a forehead flap. This is the most common surgical approach for nasal reconstruction (Correa et al. 2013). As technicians however, we were not there to learn how best to make incisions for minimal tearing or for helping a patient correct a nasal deformity, we were there to make sure the heads were fastened to the table, that instruments were clean and laid out at easy reach, and that there were plenty of gauze pads.

It was a commonly known rite of passage to do a head course early on in a technician's career. This entailed setting up severed heads on stands made up of cushions or stands that clasp the head in place via two prongs that screw the head up right. It requires a strong stomach and acclimatizing to the work. It is also one of the most sobering experiences anyone working with cadaveric tissue will experience. The act of holding and screwing a head in place, is a powerful and lasting moment; it also introduces a technician to the very real, tangible fact, that they are working with dead bodies. Seeing the faces of the donors from which the tissue technicians handle day-to-day is a sobering experience. The heads and faces force technicians to confront donors' humanity more than handling less identifiable limbs or specimens, and in doing so raise lingering questions about these people's lives, origins, stories, and their decisions to be on the table or in someone else's hands.

When I did my first head course I was shaken. It was a moment of deep reflection and intense reckoning with what I was doing in a surgical training lab and it spurred many questions. Why were the heads cut the way they were? Why were they shaved of all hair? Why did all the heads look alike? Why were we using disarticulated heads and not whole cadavers? What was my job?

However, far from the existential questions of how bodies or I got there, the driving question was how this kind of event, strange and disturbing as it was, was something that I, my colleagues, my parents, my friends, the public – including, when they were alive, the people whose heads were being worked on -- all of us relied on. We all benefit and rely on the bodies on the table and the labor of the techs that tend to them to give us better trained clinicians, better medical products, better scientific findings, yet their existence remains largely invisible to us, or worse, purposely hidden. This dissertation aims to uncover the social world of medical research and training using bodies and body parts, to pull the curtain back on labor that is relied by many, but done by few. In doing so, I hope to “surface” (Taylor 2005) some of the underlying conversations, practices, understandings, feelings, and meanings of what working with human tissue entails. By addressing this taboo subject, I hope to bring about conversations that recognize and appreciate the work that biomedicine depends on but which is often kept in the shadows.

Arrival

In 2008, at the height of the recession, I found myself jobless and living in Northern California, in one of the most expensive cities in the country. Two of the three members in my household were unemployed and we had been searching for jobs since the summer. I had been looking at positions that were related to human rights work, and would make use of my background in forensic anthropology and physical anthropology, my concentration and major in college, respectively.

A college friend had told her roommates, all medical students, that I was interested in bodies. In fact, I had worked with an organization exhuming and repatriating the remains of Bosnian genocide victims and had a background in anatomy and bones. Her roommate told her of a job opening at the surgical lab where they were hiring technicians, fresh out of college (or even in college). I reached out and had a conversation with his lab's Principal Investigator. She introduced me to the body donation organization they worked with and their sister lab, the continuing medical education (CME) training lab across the street.

There was an opening at the CME training lab for a coordinator, a position that entailed day-to-day management of the lab's operations. I was unsure that I had the necessary experience for the position, but the medical student said that my academic background and my alma mater would help. My qualifications: being comfortable working with human remains and having graduated from Stanford.

I began working at the surgical training lab in mid-November of 2008 as a surgical coordinator-in-training. I was responsible for management of the lab, had a direct supervisor (the lab manager), and spent two months shadowing my predecessor before he left. Duties I took over from included prepping the lab, keeping account of and ordering the bodies and body parts, or *specimens,* as my colleagues quickly conditioned me to call them, and managing the schedule of part-time technicians.

The job at first was a whirlwind of medical jargon, people, trainings, specimen orders, and general habituation to the work, but after some months, I began to be exposed to more of the managerial processes that made up the business side of the lab. Specifically, I saw that our invoices charged for space, staffing, and tissue. I asked my manager what these prices meant and he said that the lab did charged only for the *use* of the cadavers, but that there were no markups -- the fees were instituted by the body donation organization. He also mentioned that the body parts that were used for in-house medical school courses, were priced lower than those used for external, industry-sponsored courses. The fees were set by body donation organizations, and seemed to originate from invisible sources. No disclosure or breakdown of the prices was ever made available. The lab made it a point not "to profit" from the tissue. I thought this was an interesting arrangement. It was repeatedly pressed on to me that the bodies were not unclaimed bodies, but freely volunteered 'gifts.' I found myself wondering: if bodies were freely given donations, why were there fees for their use? And why were these differentiated according to who was paying? Wasn't the body the same?

These questions set me on a path to more carefully observe the processes happening in the lab. As program coordinator and as an anthropologist, this was easy and came naturally. I came to see that bodies and the technicians who cared for the bodies were critical to the success of the lab and to CME training and research in general. I found myself reflecting on the methods we used, the actions we took, and the general make-up of the organization and enterprise we were a part of. Where were bodies coming from? How did we choose to follow these procedures to order, accept, and then dispose of specimens? How did technicians and others do what they did? How did my colleagues feel about their work? What effect did working with the dead have on them? These questions propelled me to more critically contemplate what was happening in front of me and to consider this phenomenon in the CME training lab as an anthropological research project, to be explored in graduate school.

The CME Lab

The bodies, or rather body parts, on which medical students and practitioners learned were the foundation of their training and research. The CME training lab had come into existence to provide an alternative to the other spaces that up until then had hosted cadaver courses (the industry term for training that made use of bodies or body parts). These other spaces included basement labs, bench science labs, anatomy labs, or, as was more often the case, hotel ballrooms outfitted with surgical tables, buckets, and the thin layer of plastic sheeting on the floor. The CME lab provided a more suitable space than hotels for work with cadavers and assuaged the insecurities and unease caused by using hotel spaces. Hotel spaces were not outfitted to properly carry out a training that required negative ventilation (sucking the air out of a room from a vent therefore creating a vacuum anytime people opened doors) and nonporous ground surfaces. Moreover, the groups offering the cadaver courses had to provide proper security for the bodies they were using, and hotels were not well suited for this.

The CME training lab had been designed with the proper set-up for CME surgical and research demonstrations and had the right safety precautions for body storage. As technicians we took care of the dead bodies. We received these from the body donation organization; that organization's representative would deliver the requested tissue (sometimes legs, torsos, or heads, sometimes torsos with lower limbs without heads), in a white van, and wheel the requested items on a gurney to the third floor.

Technicians were needed to help set up, assist, and clean up after the lab was used. They also helped with the lab trainings that included everything from an anatomy lesson to a product training. “Lab assistants”, which was the official term for their position, were better known as technicians since their job required them undertake responsibilities far beyond merely assisting. They managed the preparation of the lab, which included setting up surgical tables, arranging the surgical instrumentation, operating the fluoroscopy (portable X-ray) machines, sometimes assisting with the training itself (holding a limb, passing instrumentation to the trainee), and clearing up the debris and cadaveric material after use.

We[1] worked in an anatomy lab that served as an instructional classroom for medical students the majority of the time, but had also hosted courses for working health professionals who had already completed their education, such as residents (i.e., physicians who have recently completed their MD) or tenured clinicians. Unlike the anatomy courses medical students take, these courses are often hosted by industry professionals, such as medical device company representatives, who pay for use of the facility and the cadaveric tissue so that clinicians can practice surgeries with branded devices or test out a new product. These industry courses serve to familiarize newly minted clinicians, such as medical residents, with surgical instruments they will use in the operating room, as well as re-learn anatomy in a surgical context. They also count towards the continuing education credits that most clinicians must complete each year, in order to maintain their license to legally practice medicine. While traditional anatomy courses for

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[1] In this chapter I may transition between the first-person plural pronoun “we,” referring to my role as a technician employee with technicians and the third-person plural pronoun “they,” referring to technicians’ role as I analyzed it as a researcher.

medical students generally are held on-site at medical schools, these industry courses have spread across facilities (such as hotels, or more recently CME labs) that were conventionally not used for pre-professional training. The spread of such industry courses has introduced revenue streams and additional labor hours and responsibilities to CME laboratories. It has also changed the technicians' responsibilities in anatomy spaces, since they are not required to teach anatomy, but to maintain order in the spaces where other professionals are being taught content that is not focused on gross anatomy. The larger implications of this entire enterprise are that the lab and its work, and other similar labs, are critical to the whole system of medical education, but are largely hidden and unfamiliar to most of the public who benefit from medical care, devices, and the work of the professionals who are formed in these spaces.

Here I would like to pause and standardize the way that I will refer to bodies from here on out. The terminology used to refer to bodies tended to shift from one context to another: from organization, to lab, to person involved in the acquisition and use of bodies. When I first started working, I was asked if I had any "anatomical" experience: had worked I with "cadavers," had I seen "dead bodies"?. All these terms came up again throughout my time conducting this project. I interviewed different workers who had varying understandings of what this entity was to be called. The terms "donors," "cadavers," "anatomical material," "cadaveric material," "body parts," "specimens," "persons," "biohazardous material," and "bodies" were all used when talking about dead bodies in use for CME training and research. This kind of terminological instability was not unique to this field, as other researchers have noted an inconsistency of language within a budding profession before it standardizes. Because the terms varied so much, I have decided for consistency and clarity to adhere to the following convention: I will use the term "bodies" to denote human remains after death and throughout the cycle of use, and I will use the term "cadaveric material" to denote any body that was used for training or research. Cadaveric material also encompasses the wide breadth of what human remains can materialize into, be they cadavers, the whole bodies, or body parts.

The Puzzle

I found copy of *Body Brokers* by Anne Cheney (2006) in our lab office, which pushed me further into my questioning. The book was not hidden, it was standing spine out among other books and binders in our lab office. As far as I knew no one had picked up the book or offered to chat about it, it was just placed there, left for the next wandering eyes. This was curious given that we joked that the unofficial required reading for our lab (and our jobs) was Mary Roach's *Stiff* (2003) and yet there was no lab copy of Roach's book anywhere. But here was a critique of the industry and, I would only find out during my fieldwork, the only published price list of a human cadaver and its dissected and harvested parts outside of body donation organizations' proprietary materials (see Appendix 1: List of Body Part Prices).

Cheney's book was a bit of a game changer. I started seeing what was in front of me with a more critical eye. Wondering, sometimes out loud, at how odd it was that we worked with dead human bodies but had few to no conversations about how those bodies arrived to our lab. Well, we knew *how* bodies arrived -- via Tim and the Whole Body Program, the body donation organization we sourced our specimens from – but we did not know *how* donors chose this particular organization and *why* user fees for bodies were charged. I also felt like this was not a conversation that I could bring up with the manager of the body donation organization for fear that it would ruffle some feathers, and yet there were murmurings about it every time we staffed a course.

When course coordinators scheduled a training, the topic of costs always came up, and course coordinators would often balk at the cost of cadavers to the point that they would try to reduce the amount of tissue ordered for their events. Sometimes, course coordinators would request a smaller portion of a leg, or a torso without a head, or they would seek to cost share a body part with another course coordinator so that they could split the body and the fee (e.g. one would take the upper spine while the other one the lower spine).

My manager also stated that this was, overall, a good thing. The more people we hosted in the lab, the more people learned. The more creative we could get with re-use of specimens, the better it was for students and lab visitors alike--and ultimately, it was also better for the lab, because although we did not charge for the cadavers beyond the cost to us for their use, we were still charging for use of the lab space and staffing and the “recycled” specimen.

Paradox and Ambiguity at Work

I found myself in an odd place: working within a system that charged for the use of donated goods, as part of an organization that was providing training for budding and accomplished clinicians, while also giving technicians who were recent college graduates exposure to surgical health careers. When I left the lab, I reflected on the paradox of donated goods being used to generate revenue for organizations. I contemplated these questions on my own, not feeling that my colleagues would be open to the conversation. Although the body donation organization staff stressed that we were to not take pictures of the bodies, and could not display any potentially identifiable parts of the specimen, I felt as if questioning the use of bodies was moot, since donor individuals had given their bodies to be used and, ostensibly, no longer cared what might happen to them.

But we do care what happens to bodies. Whenever I hear people (not in any proximity to death) claim that they "do not care what happens to their body" I am reminded of the story of the philosopher Diogenes as told in Thomas Lacqueur's book *The Work of the Dead* (2015). In this story Diogenes tells his students to "toss his carcass over the city wall, where it would be devoured by beasts. It would not matter to him" (Kaufman 2016). And yet, it did matter to his students, who did not follow his wishes. Diogenes pointed to the materiality of the body: it is flesh and bone and decomposes. But Diogenes ignored the other aspect of the body: the fact that the living care deeply about the dead and always have (Kaufman 2016). This also calls attention to Robert Hertz' theory on death practices. As described by Jim Green, Hertz argued that "death practices involve three essential components: the survivors, a corpse, and a realm of postmortem experience. These can be imagined as the three points of a triangle, but what was crucial for Hertz was not the named points but their connections, the relationship of each to the other two" (Green 2008).

As lab staff, as technicians, as people who work with body donation organizations and clinicians, we were caught in the paradox of valuing bodies, our work, and the "good" we were producing, but also cognizant of the taboo nature and the hiddenness of our work, and ourselves engaged in hiding the very processes that made the entire system function--namely the monetary value assigned to donated bodies.

I think that it is important to raise questions about the processes of acquiring tissue and what the everyday practices of working with human bodies entail. My question, ultimately, is not why human bodies are used in medical education -- clinicians and medical professionals uniformly agree that bodies are needed in training because human bodies are what medicine inevitably treats. Instead, what I would like to interrogate is how people make sense of their work with human bodies and what helps them do the work that they do. My research has taught me that various people work in the field of CME training and research, but that attention to the perspectives and situations of those on the “frontlines”, so to speak -- the technicians who every day receive, prepare, and clean up bodies and body parts -- can illuminate the myriad ways in which labor with human bodies is understood, practiced, and codified. There is no one standard way to treat and conceptualize work with human tissue because human tissue is “multiple” (Mol 2002). Human bodies are donated to programs, harvested into multiple parts, turned into specimens, and distributed across facilities in sometimes multiple cities, states, or even countries. There is no one type of human body and there is no one state for donated human bodies to rest in. Human bodies are many things: commodities, special research objects, priceless gifts, honored group, loved family member, named individual.

The Research

I returned to graduate school to explore these questions and to gain literacy in scholarly work that might illuminate how these processes transformed and normalized use of bodies. Through courses in theory, bioethics, science and technology studies, and critical medical anthropology, I found theorists, ideas, texts, and associated models that helped explain what I saw in my life as a technician (Lesley Alexandra Sharp 2007). My starting point would be the bodies. The way I would do so would be through a commodity chain analysis (Ramamurthy 2004), and “following the body” (Mol 2002). In order to explore this commodity chain, I needed to pursue research at the CME training labs like that one that I had been a part of. More broadly, I employed the traditional ethnographic methodologies of cultural anthropology: observation, participant-observation, and interviews (Bernard 2011; Creswell 2012; Clair 2003). I also utilized discourse analysis as a tool in my review of publications and textual materials associated with body donation and use (Starks and Trinidad 2007).

This dissertation draws on knowledge gained during a cumulative three years of employment between 2008-2011 at the first site, a Northern California medical campus, plus a return to the site in 2016 for a month specifically to conduct dissertation research. I also pursued research at second site, a Pacific Northwest medical campus, where I spent a cumulative nine months across 2013-2016 doing ethnographic research.

During the time I spent as an employee at the first site, from 2008 to 2011, I had established relationships with people whom I met as part of one-time or continuous trainings or with whom I worked in the surgical training lab. These relationships were instrumental in helping me to understand the structure of CME training labs as well as the coordinated relations between training labs, surgical device manufacturers, and the body donation organizations which provided the cadavers for education and research. I worked closely with the people who circulated in the lab, such as the residents and device researchers helping them set up their experiments, acquiring bodies or body part or other types of bodies or specimen for the courses. A handful of medical researchers in the area would at first use the lab and its access to cadavers to develop their instruments/products, and then after entering phase 1 of their FDA trials, return to the lab again do clinical test runs with affiliated surgeons.

After leaving to pursue graduate training in Anthropology I maintained relationships with the technicians and managers of the Northern California CME training lab during the years between 2011 and 2016 through punctuated visits when I was in Northern California (twice a year) and through attendance at conferences, such as the American Association of Clinical Anatomists in 2014 and 2016. When I returned in the winter of 2016 to conduct interviews, I came back to a lab space that was mostly unchanged, spare the new carts for supplies, but with over half new part-time lab staff. Because I had stayed in touch with the manager and lead technicians throughout the years, I was able to come back and easily schedule interviews with them and embed myself in a surgical suite to do daily participant observation even when no courses were in session. With the new staff, I built trust over the course of the month, having had introductions through the more seasoned technicians and managers, explaining my connection to the space, demonstrating that I knew the operations of the lab by helping out as much as a volunteer could, grabbing extra supplies, helping the visitors put on protective equipment, helping clean up the non-lab space, but I had little to no contact with cadaveric materials during that period (since I was no longer an employee of the lab, I was not allowed to do the same work as the technicians). Six technicians and two managers associated with the surgical lab sat for lengthy interviews and explained to me their experiences running courses, arranging for cadaver bodies, and what their thoughts were on the use of these bodies in continuing medical education and research. It was after I reestablished connections with the surgical lab and its personnel that I was able to visit associated collaborators such as the local body donation organization from which most of the cadaveric material were sourced.

The body donation organization associated with the CME training lab is one of the largest body donation organizations in the Northern California region. Their main offices are located in the Northern California medical school campus, but their warehouse is located offsite in a warehouse district. I conducted observations and interviews at both of their locations with two technicians and one manager. I also conducted an interview with the director of the organization's larger operating institution.

Through the body donation organization and the surgical lab, I was able to make contact with three other education and research spaces—two research labs, and one other surgical lab. The research labs conducted research with large cadaveric tissue, such as whole spines, limbs, and half bodies. This was different than the research labs that only requested human tissue like that derived from brain cells or skin. These two labs made use of body parts, not whole bodies, which gave a different perspective on what the use of cadaver bodies entailed, what policies and protocols were in place, and what bodies meant to the technicians working in those spaces. I interviewed a combined five researchers at these two labs: two managers and three technicians. The second surgical lab held anatomy courses for pre-professional students as well as graduated clinicians, and provided further understanding on the protocols that may exist when a space is used in CME as well as pre-graduate medical education (first year health science students e.g. medical, dental, physical therapy, nursing).

Recruitment of informants for interviews took place after I had arrived at the labs. Some subjects I approached in person, others I sent emails introducing myself as a graduate student in Anthropology with an affiliation to either the Northern California CME lab or the Pacific Northwest CME lab. I also relied on the contacts I had made at these two sites, primarily the head technician or manager, to make contact with a colleague or technician they worked with, and introduce me as a visiting anthropologist—something I had to explain when I met them or in follow up emails. I relied on snowball recruitment to get in touch with four people: three in a research lab associated with site 1 and one with a body donation organization associated with the second site.

The second site, the Pacific Northwest CME lab, was a space much like the Northern California CME lab. The Pacific Northwest CME lab was associated with one medical school department and had two locations, with cadaveric trainings occurring solely in their second location. Similar to the Northern California CME lab, the Pacific Northwest CME lab was located in the medical campus where many of the residents and faculty rotated through. My time at the Pacific Northwest CME lab however, was less sustained; I attended three weekend courses during the summer of 2013, two weekend courses in 2014, and visited weekly on Friday afternoons during Spring 2014, and later Spring and Summer 2015. I conducted interviews with technicians in the Fall of 2015.

When I returned to the field as a researcher, not as employee, I spent much of my time shadowing technicians: observing their work (when allowed) or the actions within the lab. I would ask the technicians questions about their work, their goals, their day, or the training I was witnessing. I would chat with some of the device representatives who were not at a surgical table helping the instructor or trainee with the demonstration. If I was observing one of the smaller courses, those with residents or one faculty and a trainee, I would after a while ask them about what they were doing, or they in turn would take an interest in me and ask me about my research. However, responses that followed after I said I was studying the use of human tissue varied. Some technicians and researchers working with tissue, assembling the room and arranging the bodies or body parts, would find it odd that I was looking for "meaning" in their work past their explanation of what they were doing or researching. Meaning, for them, was found in the activity at hand, not in the questions about provenance of the bodies, or normalcy or nomenclature that if given the option, I would ask of them. They found me funny, odd, tolerable, and sometimes misguided—they questioned *why* I was studying this subject or their experiences. Still, though, they would politely answer some of my questions which I took down as notes. For those with whom I had established enough of a relationship, open conversations were much easier. It was through my continued presence, what I would jokingly call “hanging out”, that key informants came to see me as a trustworthy presence and after months, accept my request for interview. Of course, because this is still a small field the names and places mentioned in this research are all pseudonyms to protect the anonymity of my research informants and collaborators. I received IRB approval to do this work from my home institution, the University of Washington.

Gaining access to this field and the larger industry of body donation was laborious and required sometimes lengthy vetting by the organizations. They expressed concern about being misrepresented or gaining a bad reputation through what I might say or write about them. Such concerns stem from a long history of bodies being robbed from graves and sold to medical schools for anatomy programs. And this is not a concern of the past. As recently as November 2017, the FBI opened investigations into body donation organizations (some of which have attached surgical labs) over their distribution of body parts (Shiffman and Grow 2017b). Concern about the possibility of being associated with the illicit practices of one organization, and being misrepresented as disrespectful or worse, abusive and exploitative, made the staff of body donation organizations understandably wary of my requests for access. This too became part of the research. I had many rejections from body donation organization personnel and from some CME lab staff. People were wary of what I would find or what I would say. This was emblematic of the topic of this dissertation: the system remains taboo and largely hidden, and occasional high profile lurid exposés have given people in this field reason to be cautious.

Much of ethnographic research relies on the connections and trust between researcher and informants, to guide our work, give us access to other people and spaces, and to at times, interpret the world we are studying. I felt the need to show my interest in the work that they were doing and, almost more importantly, that I was not there to extract information out of context and twist its meaning (something many in the field and industry of surgical trainings and body donation are afraid of), but to understand their intentions and their lab operations. It is because of long term relationships that I cultivated during the first phase of this research in combination with my knowledge of the field, that I was able to gain access, speak the language, and understand the nuances in the work that the surgical labs, research labs, and body donation organizations were doing. Through this process I was also exposed to, collected, and analyzed various donation forms, literature from professional associations, and materials from body donation organizations and CME training labs alike.

In the process, I came face to face with the connection between the current conversations and lives of those working in CME, and the history of medical education and research. I witnessed and documented the concerns of the people in this field, and studied the hiddenness of this whole aspect of medical research and training. Both are products of the long history of commodification of bodies, which stretches back for hundreds of years. In the following discussion I trace the history of how human bodies, their body parts, and human tissues have come to be a staple in biomedical markets, appreciating in monetary and then rhetorical value.

A (Short) History of the Use of Human Remains

The use of human bodies and body parts has a long history, as human remains have been used as trophies, relics, anatomical displays, and devices in rituals for hundreds of years (Lock and Nguyen 2010). Stretching back to ancient Greece, the use of bodies for early anatomy trainings and the exploration of the body as a locus of knowledge had its beginnings with Herophilus and his apprentice Erasistratus in Alexandria(von Staden 1992). These early physicians initiated the first dissection of bodies which, until then, were only explored superficially. The use of such bodies was made easier because of a longstanding convention by kings of gifting bodies of executed criminals for scientific pursuit (von Staden 1992). After the death of these two physicians, human dissection fell out of favor because of strong predilections for text-based study over flesh dissections. As self-identified “empiricists”, physicians in Alexandria moved away from hands-on dissections and towards superficial observations and text based instruction on the premise that clinical results could be attained without human anatomical knowledge (Ghosh 2015). I have put “empiricists” in quotation marks, since these physicians were not practicing empirical work, but archival, historical analyses. One of these empiricists was the Greek physician Galen, who created texts based on his experiences dissecting animals and the *Treatise of Anatomy*, a book that would come to be taught for the next 14 centuries across European medical trainings.

With the increased influence of Christianity throughout Europe, human dissection was not practiced since academic focus was placed on the eternal and celestial. In contrast, the human body, as a material object, was considered fleeting and unimportant as a vessel for the soul, yet contradictorily dissection of it was considered a desecration and prohibited (Gregory and Cole 2002). Given these emphases and limitations, Galen’s and other empiricists’ texts were used as medical guides without verification on actual human bodies(Elizondo-Omaña, Guzmán-López, and De Los Angeles García-Rodríguez 2005). It was not until the renewed interest in scientific and artistic knowledge of the early Renaissance that human dissection was re-introduced into the medical training curriculum.

Beginning in the 12th century, the Catholic church lifted the explicit ban on human dissection, although it also released confusing decrees that made practicing human dissection difficult (Somerville 1977). One decree was a stance against bloodletting, which limited the practice of surgery and anatomy by clerics (the academic class). These decrees were later lifted when Roman emperor Frederick (1140-1250) mandated that a human body be dissected once every five years for anatomical study, with mandatory attendance by anyone pursuing a medical or surgical career (Rengachary et al. 2009). As restrictions on dissection of human bodies for anatomy lessened, academic institutions across Europe, but mainly in Italy, began offering more and more dissections. The concurrent flourishing of universities and academic inquiry into the body led to the first officially sanctioned public human dissection performed in 1315 by Mondino de Liuzzi in the University of Bologna (Rengachary et al. 2009). According to scholars, the dissection was done on the body of an executed criminal (von Staden 1992). Almost 170 years transpired before the academic tradition of systematic dissection was “revived” – and with it was also revived the tradition of using for this purpose the bodies of the socially marginalized who had been killed by the state.

Throughout the 14th century, the practice of human dissection proliferated, first using the bodies of executed criminals, then bodies dug up from graves (Park 1994). Contention arose around what it meant to use bodies for dissection because of the widespread understanding that "to open or dismember the body for doctors to inspect—an act of no conceivable utility to the deceased, now beyond all medical aid—was an act of objectification and a violation of personal honor" (Park 1995: 126). Contrary to this, the much more common practice of autopsying corpses was exempt from such perceptions because these were generally performed at the request of patrician family members to figure out the afflictions and causes of death of their loved ones (Park 1994). The particular dishonor of being cut open was relegated to the criminal and the poor because "they were marginal members of society, but they were marginal on account of their poverty and geographical origin as much or more than their judicial status" (Park 1994: 12). Dissection exposed the naked body and face to the public, which also "gave the anatomization of female subjects a particular charge in a society that associated female honor with chastity and avoidance of the public eye" (Park 1994: 13). Such exposure castigated not just the corpse, but the family of the individual. Noting the particular shame associated with being cut open, dismembered, and publicly recognized, some Italian schools required their medical students to pay into a fund for the funerals of the dissected bodies. The Venetian college of doctors and surgeons went so far as to "require students attending the dissection not only to pay for but also to attend the subsequent funeral in hopes of encouraging local families to offer their dead for dissection" (Park 1994: 13).

This trend toward increasing frequency of public dissections continued throughout the Renaissance period, spiking as anatomy programs spread across Italy and as pedagogical approaches shifted towards having hands-on cadaveric dissection rather than the detached tradition of observing the dissection from above in anatomical theaters. The historian Jonathan Sawday wrote that because the majority of the bodies were coming from the gallows, a peculiar relationship emerged noting that “the end result was that the criminal, the executioner, and the anatomist, each had a role to play in what has been termed ‘the culture of dissection’" (Sawday 1995: 327). Eligible bodies included local executed criminals, as judges began ordering that the bodies of hanged criminals be used for dissection (Ruth Richardson 1987).

According to human anatomy and ethics scholar Gareth Jones (2017), anatomists, who were faculty and students, took part in the acquisition of bodies, thus aligning themselves with the execution and collection of criminal bodies. Not doing so would have meant that they could not continue with their work, because the stock of bodies would run out. A dilemma emerged, since anatomists were linked to the unsavory work of criminal justice. In a public relations twist, at least for the times, anatomists were seen as providing a special service, providing a window into *the* body, the venerated and religious principle (Sawday 1995).

Frustrated with the lack of exposure to human dissection and the tradition of having the anatomist orate directions for the barber surgeon to dissect bodies, Andreas Vesalius, then a student of medicine, began dissecting human bodies himself. He began by using the bodies found in the gallows (Holomanova et al. 2001) and later resorted (and admitted) to grave robbing to gain practice and ultimately produce his magnum opus *De Humani Corporis Fabrica* (Vesalius 1555).

Following the publication of Vesalius' text and the printing of other anatomy texts throughout Italy and France, human dissection became ever more popular, and with it there arose a demand for cadavers (P. D. Mitchell et al. 2011). By the start of the 17th century there were not enough eligible bodies of executed criminals to satisfy the need for dissections, so local officials across Italy and France began expanding the pool of eligible bodies to the corpses of criminals outside the city where the medical school resided (Ghosh 2015).

As bodies became shorter in supply, officials in the 17th and 18th centuries expanded the number of offenses that could be punishable by hanging, and made it such that anatomy programs could use the bodies of the hanged (P. D. Mitchell et al. 2011). England passed the Murder Act of 1752, decreeing that certain crimes were "punishable by dissection" (Sappol 2002), concretizing dissection as a suitable form of penalty. Not long after that, the practice of robbing the graves of the poor became widespread across the European continent, as well as in the United States where medical programs were opening.

In his history of anatomy and the use of bodies in the US, Michael Sappol writes that as early as the “late-eighteenth century and into the late nineteenth century, medical grave robbery was a common occurrence in America" (2002: 13). In fact, the explosion in the need for bodies came after 1765 with the opening of the first medical school in Philadelphia, the College of Philadelphia, and subsequent opening of other medical schools in the late 18th and early 19th centuries (University of Pennsylvania n.d.). Because the only sources of cadavers at the time were those of executed criminals, provided under a federal law in 1790 that "gave federal judges the right to add dissection to the sentence of death for murder" (Tward and Patterson 2002), most instructors and students resorted to secretly exhuming the recently deceased or hiring grave robbers to acquire more bodies for dissection (Jones 2000).

Thieves would strike "potters' fields (cemeteries where indigents were buried at public expense) because those cemeteries lacked precautions against theft and the risk of uproar over the pilfering of a pauper's corpse was small" (Garment et al. 2007). Relatives and communities of the people whose bodies were targeted and dissected at that time, however, had relatively little recourse for redress; these were bodies of African Americans (enslaved and emancipated), prisoners, and the poor. Consequences for grave robbers were few and minimal, since the body itself was not considered property. Mary Roach notes, "being caught in possession of a corpse's cufflinks was a crime, but being caught with a corpse itself possessed no penalty" (Roach 2003: 43).

And so began a process of commodifying the bodies of the poor, of criminals, and of other marginalized groups. In the US, the bodies of not only African Americans, but Native American bodies in cemeteries were plundered as well. Those who procured these bodies valued them not for religious or moral reasons, but because of their biological (use) value. The body was transformed into a commodity by extricating it from its social surroundings and valuing it purely on its use qualities. Michael Sappol writes, "corpses were bought and sold, they were touted, priced, haggled over, negotiated for, discussed in terms of supply and demand, delivered, imported, exported, transported...Human bodies were dismembered and sold in pieces, or measured and sold by the inch" (2002: 72).

Concern over the desecration of graves and the few but notorious cases in which poor individuals were actually murdered for the purposes of selling their bodies to medical schools (Townsend 2001), ignited public outrage and the passage of the Anatomy Act in 1831 in Britain, which barred the sale of dead bodies and instead allowed anatomy programs and medical schools to source bodies from the unclaimed bodies of almshouses, hospitals, and sanitoria (Ruth Richardson 1987). The British Anatomy Act maintained that when the poor and the criminal died, hospitals and prisons as the institutions that housed them were then privy to their "unclaimed" bodies, since the poor and institutionalized had no means to pay for burials (Sappol 2002). Similarly, in the U.S., the Massachusetts Anatomy Act of 1830 and 1833 allowed for the use of unclaimed bodies in medical school dissections.

Although this did relieve the shortage of bodies for use in medical anatomical study, it nonetheless perpetuated the practice of using the bodies of the poor, vulnerable, and marginalized in U.S. biomedical education. Such laws were lauded "both by medical schools and by local governments, which were previously responsible for burying unclaimed bodies" (Hulkower 2011: 25). Advocates of the law also felt that by using the bodies of criminals and the poor, they could repay society for the burden that they had created. Unfortunately, this set in motion the practice of using the bodies of the dispossessed and marginalized as the norm, with little questioning by any of the parties involved; neither the state, the almshouses, the medical community, nor the public wavered on this convention. And by not considering a petition for voluntary donation as a viable alternative, "this lack of ethical reflection legitimized the unclaimed paradigm as the normal source of bodies for anatomical investigation" (Jones 2017: 7).

The anatomy laws worked, however. Because these laws legalized the transfer of unclaimed bodies from public/state institutions to medical schools, "the price of illegally obtained bodies fell, and grave robbing was no longer profitable" (Garment et al. 2007: 1001).

The Turn from Unclaimed to Donated Bodies in the U.S.

Although the practice at the time was not widespread, by the nineteenth century some individuals had begun donating their bodies for use in dissection. In 1899, the New York Times reported that a wealthy Maryland man, Thomas Orne, had decided to donate his body to science (The New York Times 1899) One of the main barriers to donation at that time was the stigma that continued to attach to dissection, given its associations. By the late 19th century, having one's body used in dissection not only stigmatized the person as a social outcast, but it also meant they were too poor for a proper burial. Orne was likely not concerned about these stigmas given his wealth and ability to afford a proper funeral. For Orne and other wealthy donors, the stigma of dissection and its relation to poverty did not apply. Physicians too, having witnessed the shortage of bodies, had begun donating their bodies (The and New York Times 1912). And we cannot forget Jeremy Bentham, political philosopher, perhaps most widely known as the person who coined the concept of the "the panopticon", and his request "in his will that his body was to be dissected as part of a public anatomy lecture" (Jones 2011: 18). The dissection of his body took place in 1832 and his remains, or rather his skeleton and his head, have resided at the University College London since 1850 (Jones 2011).

By the turn of the twentieth century however, the use of "unclaimed" bodies had fallen into disfavor in the U.S., and institutions involved in medical education turned attention towards requesting the consent from family members for donation. Donation practices became more and more necessary as the number of unclaimed bodies had reduced thanks to the economic initiatives of the 1930s, which improved the health of the poor and allowed them to pay for funerary services (Garment et al. 2007). As a result, the number of unclaimed bodies -- previously the main source of anatomical specimens for anatomy programs -- was drastically reduced.

As the 20th century wore on and the U.S. went through a population boom, two world wars, legislation changes, and expansions in science, the process of acquiring bodies for anatomical dissection changed drastically. Graverobbing had already declined significantly given the anatomy laws, but the next source of bodies for anatomical dissection -- unclaimed bodies in hospitals and almshouses -- were also becoming less available. By mid-20th century, medical schools no longer had an adequate supply of cadavers for their anatomy programs. Anatomy programs turned to families asking them to donate the bodies of the deceased for anatomical dissection, since individual donors had no claim on their own body, according to U.S. case law. Other scholars have pointed to how this conundrum also affected the retrieval of body parts for other uses, such as organ donation (Lock 2002a; 2002b).

What made the biggest impact on donation in the U.S., however, were mid-century funeral industry exposés. Between Bill Davidson's article, “The High Cost of Dying”, Roul Tunley’s article “Can You Afford to Die?”, and Jessica Mitford’s book The American Way of Death (Hulkower 2011), journalists sowed skepticism about the rise in funerary costs and motivated more serious consideration of body donation among the American public. Mitford, for example, recommended body donation as a way to curtail costs associated with body disposal. Her book included a list of U.S. medical schools that would accept donated bodies (Mitford

1963). It is considered one of the first comprehensive lists of schools that accepted body donation (Garment et al. 2007).

By the late 1960s however, confusion over the body and property and donation arose from a panoply of sometimes inconsistent laws surrounding anatomical tissue use in the U.S. This led to the convening of the National Conference of the Commissioners on Uniform State laws which drafted and approved the U.S. Uniform Anatomical Gifts Act (UAGA). The UAGA standardized how anatomical material could be exchanged, used, and made available for therapies, transplant, research and teaching (Uniform Law Commission 2006; National Conference on Commissioners on Uniform State Laws 2003). The act established the body as property and therefore allowed for individual donors to bequeath their bodies to donation programs without the consent of their families (Garment et al. 2007; Charo 2004). Human bodies and body parts could now more easily enter an exchange “system” without fear of social classification as an indigent or criminal and with the assurance of anonymity. In fact, donors were and continue to be well-respected individuals in the medical community. Medical schools with anatomical programs promise potential donors that medical students will treat donor bodies with respect and offer memorial services in which students, staff, and sometimes families of the deceased, share their experiences. Asked about their reasons for donating, donors and families cite reasons that include the contribution to science, training, and even “pure love” (McCall 2016).

Of note is the relative rapidity (within 100 years) with which the procurement of bodies in the U.S. has shifted from using stolen bodies, to bodies of the unclaimed, to donated bodies. Such speed should highlight the strong influences of the medical industry and public perceptions of (dis)honor, justice, respect, and money. Interestingly, the profession of medicine and medical professionals themselves have not generally been held responsible for the acts of grave robbers who supplied them with bodies, nor with the discriminatory practices they executed. Medical historian Ruth Richardson has pointed out this inequity writing "that a vocation which professed 'no object but that of conferring benefit on others' in healing the sick and the saving of human life should have been responsible for the commissioning of so many premeditated murders, was seen as an unspeakable paradox'" (Richardson 1987: 133). I see this same paradox in the 21st century, in the field that I examine.

Body Donation in 21st century U.S.

Modern day donation practices are generally straightforward--at least on paper. Once an individual has made the choice to donate their body and has chosen the organization where their body will go, they fill out the donation form used by the designated organization (generally short contracts ranging from one to six pages, on average). The donation must be signed by two witnesses over the age of 21. The donor is issued a donor card (or some form of document identifying the individual as a donor, see Appendix). The donation becomes effective at the time of death. Generally, there is no age restriction for donation, but for donors under age 18, a parent or guardian signature is required. An individual can also make the decision to donate when they are dying, and their attending physician know can act as a witness. If the individual changes his or her mind, and chooses not to donate her/his body after the donation registration has occurred, they can let the organization know orally or in writing prior to death.

If an individual has not chosen to donate their body, family members can make the choice for the individual. Select next of kin can contact the organizations and fill out the form for donation on behalf of the deceased family member. Certain organizations have specific criteria for body donations. Generally, these exclude bodies on the basis of geographical location (some organizations will not travel more than 100 miles for a body), weight (bodies weighing above 250-300 pounds are usually not accepted because of the added weight embalming fluids add), if the body has previously been autopsied, and if it is known that the person had a communicable disease (although bodies that are accepted are also always tested for communicable diseases after arriving at the donation organization facilities).

The body is retained for a period of months to years, since select bodies may be harvested for a series of projects that have different timelines. For example, embalmed whole bodies may be used for designated courses in anatomy, after which instructors might dissect a limb to keep as a ‘prosection’, for future instructional demonstration. That prosection will be used for multiple courses in months and years to come. Similarly, a body may be disarticulated at the beginning into a series of body parts that will not all be embalmed; in fact, most donated bodies are not embalmed at all. These body parts, sometimes referred to as specimen, anatomical material, human tissue, or simply by their name (i.e. torso, pelvis to toes, arms), will be stored until assigned to a demonstration or course or research project. Requests for the bodies are put forth by a panoply of educators, researchers, and students who may need the body or body parts for multiple days, weeks, or years. The period of use will depend on the project (and consistency of the tissue), but once the project ends, the body/body part will typically be returned to the donation organization for cremation (or arrangements will be made between the user and the donation organization to send the body/part to a local crematorium). Depending on the organization, the family may receive some or no part of the cremains.

Many organizations conduct a public memorial service for donors. These may be organized by medical students, if the organization is part of a university, or by the organization staff, if they are a non-university affiliated entity. Generally, cremains not returned to the family are disposed of at sea or in a cremation plot.

Donation Demographics in the United States

Because of the dispersed and nonregulated nature of whole body donation, exact figures on donation do not exist. However, recent independent estimates by Reuters put whole body donation at around 12,500 per year(Grow and Shiffman 2017) while published studies estimate that under 20,000 bodies might be donated every year (Becker and Elias 2007). The latter estimates, however, were based on models for cadaver organ transplantation, which are different than whole body donation for research and education and explicitly non-transplant donations (see Chapter 2).

The majority of these donors have been shown to be "educated, married, and white males over the age of 65 [who] are more likely than other sociodemographic groups to bequeath their bodies" (Asad, Anteby, and Garip 2014: 53; see also Lagwinski et al. 1998; Harrington and Sayre 2006; Healy 2004; Sanner 2006). Boulware et al (2004) found that in a survey of potential whole body donors in Baltimore, factors that negatively influenced willingness to donate were "younger age, African-American race/ethnicity, less education and income, greater number of dependents, marital status, and attitudes about religion/spirituality, trust in hospitals, and income, gender, and racial/ethnic discrimination in hospitals" (2004: 570). Far and away the most important factors in willingness to donate were a respondent's race/ethnicity and education (Boulware et al. 2004), but Asad et al. (2014) also found that a growing population of donors are older women (80 years old and above), separated, with limited college education, who were either immigrants or children of immigrants.

Regarding these findings: First, it is not surprising that so little diversity is represented in the whole body donor pool, when we consider who has historically and traditionally driven and influenced whole body donation practices: moneyed, educated, older white men. Second, the demographic who chooses to donate is also that which displays more trust and access to healthcare: that is, again, older, educated white men and now, older immigrant and children of immigrant women. Third, seeing who donates also helps us understand how whole body donation might continue or whether it might change given more disclosure about what happens to bodies and how they are sourced and traded, as well as if incentives for donation are introduced. This is a source of caution because as the medical anthropologist Margaret Lock has noted,

> "in an era when commodification of the body is rampant-as a source of intellectual property, financial gain, and therapeutic tools—certain individuals, notably the socially disenfranchised and the socially dead, are increasingly vulnerable to being counted as good-as-dead. They are judged as having little or no value—on the contrary, as being a drain on society—and therefore, it is often argued, better use could be made of their body parts in the utilitarian world of medical science" (Lock 2003: 191).

While CME training and research practices are good and necessary for the continued education of students and budding health professionals, they emerge out of a murky history of a body commodified for dissection that *should be* hard to ignore, but proves to be *easily ignored* because of how well hidden it is. This is all the more true when these donated bodies end up in places other than traditional anatomy labs, such as in education and research laboratories where users visitors pay a much higher fee for the use of cadaveric material, and have little in the way of a social and historical understanding of how these bodies got there. Removed from the social relations of donor and user, that is patient- or physician-donor to medical student, the new spaces where human bodies move to are marked by a new political economy. To borrow from Paolo Santoro in his examination of the bio-market for umbilical cords and placentas, "this neoliberal medical subjectivity is no longer framed by notions such as the local community or the nation-state, but it does not operate in an empty space either. It is the market that mediates action, and where new forms of (bio)capital are put into play" (Santoro 2011: 87). When the donated body becomes commodity and is no longer constrained by the forces of the local community or the state, donation cannot be understood simply as gift exchange; political economic forces come to the forefront.

Plan of the Dissertation

In light of the history of donation, my research came to focus on the practices, meanings, and paradoxes of the circulation of bodies today. While the need for bodies -- for medical education and research -- may be self-evident, referring to that need does not offer an explanation of the body's transfiguration, of the (un)making of people into objects of use and study and commodification. This dissertation is about the (un)making of people. By following the trajectory of receipt, use, and ultimately disposal of bodies, I will show how bodies are transformed by their users and caretakers. The process of donation helps illuminate some of the systems in place that feed biomedical (re)production. Dead bodies (of donors) are consumed as part of the social process of producing newly trained bodies (those of surgeons, physicians, and other clinicians as well as researchers and students), in a system that involves the creation of educational and therapeutic materials (such as medical devices, pharmaceutical products, and transplantable objects), and perhaps most acutely, the creation of monetary value. This dissertation is organized around the image of a trajectory; each stage of the trajectory reveals different aspects of the *social* lives of donated bodies, the predicaments faced by people who work with them, and how they deal with their work.

In chapter 2, I describe the way that bodies are sourced after death. I term this, the beginning of the cadaver's life. I observe and speak to body donation organization officials who recruit whole body donors and who receive, process, and prepare bodies and body parts to be shipped to CME training and research sites. This chapter deals most directly with the concept of (un)making people. However, this (un)making of bodies is not as straightforward as simply taking bodies and harvesting them for parts. Specifically, through an analysis of how managers and technicians talk about and do work with cadaveric bodies, we see that persons are unmade, and made into commodities that are called cadavers and specimen, but nonetheless traded, monetized, ownable objects. I first demonstrate how the everyday practice of receiving, processing and treating bodies transforms them from person to cadaver and specimen. These liminal terms also demonstrate the liminal character of the body. I draw on commodity exchange theory to help explain how this process works. In this chapter I ask, what processes are in place to (un)make bodies? What effect does (un)making bodies have on the people who most directly (un)make them, the technicians? How do technicians make sense of their work and, ultimately, how are they fine doing it? Body donation organization staff are motivated, as they do their work, by care. I use care theory to help explain how technicians disarticulate, prepare, and make sense of their work with dead bodies. I draw on the theories of Viviana Zelizer (2011) and Paul Brodwin (2013) to show how mundane objects and everyday practices enter a delicate territory when monetized and how a balance between bureaucratic necessities is important for workers.

In chapter 3, I describe the next step in the cadaver's life, its use. This takes place in the CME training and research labs. In this chapter I focus first on the history and growth of the CME training and research labs and the development of their professional association. I then return to my main two field sites, the Northern California CME training and research labs and the Pacific Northwest medical school CME training and research lab. Both CME sites are similar in their training, treatment, and performance of their duties with dead bodies—they treat dead bodies as objects used in medical education. However, the particular practices that the technicians (not the managers) carry out point to larger issues within medicine, particularly of paraprofessionalism, the construction of knowledge, invisible labor, and emotional socialization in medicine. I follow scholars who have examined invisible labor, such as Arlie Hochschild (2011) whose seminal works on invisible labor in paid employment laid out how emotions become commodities in service work. I also follow Karen Messing (1998) who highlights how janitorial staff contribute to patient wellness in hospitals. I draw on the work of Marion Crain, Winifred Poster, and Miriam Cherry who highlight invisible labor in spaces outside of biomedicine, but nonetheless "focus on labor that occurs within formal employment relationships but is not conceptualized as work and so remains hidden from view-sometimes in the public imagination, sometimes from consumers, and sometimes from the workers themselves. When their work is erased, the workers themselves are sometimes rendered invisible as well" (2016: 3). And importantly, one of their main themes in this chapter is how invisible labor is often unregulated (Crain, Poster, and Cherry 2016). I do not offer an answer for how it should be regulated, only suggest that we should pay attention to these tensions and these invisibilities. Labor is not inherently invisible, it is *made* invisible -- much like bodies in CME, which do not simply exist, but rather are *made*. For bodies as for the labor of the technicians who work with them, the tension lies in how they are treated, how they are moved, and what stories are told about them.

In chapter 4, I describe the end of the cadaver's life: I describe how the disposal of bodies occurs. First, I focus on the policies, standards, and best practices created by body donation organizations and professional associations involved in how cadavers are disposed. I then analyze how these seemingly formal stipulations are incongruent with the practices actually employed by staff in CME training and research labs as well as the body donation organizations. I explore the concept of respect as it emerged in these labs and organizations. I consider respect as a "boundary object," as characterized by Star and Griesemer, to help analyze the different conceptions of the word and practice as they were used by employees differently positioned within the labor hierarchies of these organizations. This leads me to an analysis of "the gift" vis-a-vis the body as commodity. I look at how reciprocity, as one of the fundamental aspects of the gift, is disturbed in this conjunction of "gift" and "commodity" because inevitably, as Jim Green (2008) has stated, "A body is mysterious because it is a site for the play of imagination, most especially in its stunning silence as a corpse" (85). I draw on the theories of Marcle Mauss, Lesley Sharp, Lewis Hyde, and others to explore the duality between the gift and commodity in a market-mediated biomedical world.

In my conclusion, I take up broader questions about the value of bodies and the implications of this research. I suggest that bioethicists and clinicians could use the empirical findings presented in this dissertation about the work and the responses of body donation organization and CME training and research lab staff, to better understand respect for autonomy -- namely what respect is, and what it looks like in the clinic. In this chapter I also address the limitations of this research and suggest future directions for further inquiry.

Chapter Two: Acquiring Bodies

What we do with the dead shapes, sustains, and reinforces social order.

–Sharon Kaufman, Why We Need the Dead, 2016

Introduction

In order to explain the story of bodies in medical education and research, we need to trace how "bodies" come to be. Bodies are derived from people, or rather, people become bodies when a person donates their body to an organization and enters a system of circulation. This system is marked by multiple steps, with various actors, and importantly, distinct phases of transformation. These transformations, which are largely hidden from public view, render the donor, once a person, into a tradable, ownable, commodity specimen. The practices that transform a (person) donor into a (commodity) cadaver are familiar and common, yet they are made strange by the inherent fact that these are people being unmade, metaphorically and physically, into commodities by other people.

The route these bodies take begins when a person dies, is recognized as a donor (via a process that often predates the donor's death), picked up via mortuary transport system, and delivered to the body donation organization where preparation of the body begins. Actors who partake in this system of circulation have varying degrees of knowledge about the identity of the bodies, and their ultimate use. These actors range from the medical transport company drivers (employees of mortuary and funeral homes who drive mini-vans --not hearses-- to pick up and deliver cadavers), to the technicians who receive the deliveries and who help set the transformation of bodies in motion, as well as the managers and directors who set protocol and practices for the receipt, use, distribution, and disposal of bodies. Together these actors take part in a system of circulation for bodies. Transporters move bodies from hospitals, hospices or places where persons died to body donation organization facilities. Technicians receive donors and prepare them for use in the system through a set of practices codified as protocol in their institution. Managers and directors review the donor profiles before arrival and make decisions based on institutional inputs on how best to proceed with the acceptance, preparation, distribution, and disposal of bodies. Through these sets of hands bodies are turned into something they were not before. They are suffused with meaning, value, and a worth of a different kind. These bodies are also made “multiple”, harvested for individual parts and reflecting multiple meanings and realities. I use multiple in the sense defined by the philosopher Annemarie Mol, to mean how the ontological status of bodies and diseases are made (or understood) differently by different actors (Mol 2002). Applying this same concept to the analysis of bodies in continuing medical education (CME) training and research is useful.

Understanding the actors, ideas, and actions involved is important because the circulation of bodies and their transformation are not linear; they happen in an iterative manner at the hands of many users. Bodies enter into the system of circulation as people, as donors, and along the system are transformed by users through their actions into bodies, cadavers, and “specimens.” They continue on this process of transformation, “living” in a liminal state between tool and human, used for the purposes of biomedical education and research, acknowledged and respected as coming from people but not viewed as having the gravitas of a person, dead or alive. The bodies in medical education and research in fact are not always whole bodies, at least, they do not often stay that way. Users of bodies have to contend with the multiple reminders that these tools of education and research once were, and in some respects remain, human. This was made clear to me through the many conversations with body donation organization technicians and managers as well as through my observations of how such bodies were delivered and the care taken to keep these bodies wrapped, hidden, and prepared in a distinctly clinical way.

This chapter describes how people who work with bodies use practices of care to transform what were once people -- effectively we see how people unmake other people. Taking a more careful look at a body's use cycle, allows us to see the practices by which people, mainly technicians, are tasked with unmaking other people, the donors. What follows is an examination of one node in the circulation of bodies, examining the practices that take persons and unmake them into usable bodies. This chapter is concerned not just to show that persons are turned into non-persons, but how and with what effect this happens. The people tasked with unmaking persons are technicians whose job involves taking donors and turning them into usable tools for research and education. The way they do this and the ways they think and talk about this work is the focus of this chapter. In examining how technicians do this, I illuminate the ways that care, as a practice and as a sentiment, acts both to humanize and concurrently to depersonalize donor bodies, effectively transforming persons into commodities for use later in the circuit. First, I will discuss policies and protocols related to how body donation organizations receive and treat bodies. Then I will go into the body donation warehouses where bodies are received and harvested for eventual use in education and research. Finally, I analyze the practices, ideas, and conversations behind how these bodies are processed and harvested, demonstrating that as bodies circulate, their meaning changes, as does their association with the human donor they were, but new meanings and associations also emerge, with the workers who care for them.

Goods, Commodities, and Transformations

Of the commodity, Marx wrote that "a commodity appears, at first sight, a very trivial thing, and easily understood. Its analysis shows that it is, in reality, a very queer thing"(Marx

1993: 163). Indeed, the commodity is an odd thing because of its seeming mundaneness, its everyday quality of being. But Marx called for a more critical analysis, an invitation to seek deeper insight into the creation and valuing of the commodity, or how the commodity comes to be. For Marx, a commodity exists as a product intended for exchange, it is crafted by human labor, but the mechanics of capitalism veil that human labor and abstract personal investment from the product one produces. Instead, our exchange is mediated by these commodities that do not reflect the personal labor, sweat, and time invested in collecting, crafting, thinking, and growing said commodity. Our social relations are mediated by how much more product/commodity we can gain from the other; by valuing ourselves through our products. In doing so, we equip value with the fundamental power to "convert every product into a social hieroglyphic" (Marx 1993: 167). Hence Marx regarded it as indisputable that commodities were a product of people, calling it "a physiological fact, that they are functions of the human organism" (Marx 1993: 164); meaning that commodities in their very essence are socialized things, constructed for and valued by people. Marx took extant political economic analyses of his day to task, scathingly noting,

> "Political Economy has indeed analysed, however incompletely, value and its magnitude, and has discovered what lies beneath these forms. But it has never once asked the question *why labour is represented by the value of its product and labour time by the magnitude of that value*. These formulæ, *which bear it stamped upon them in unmistakable letters that they belong to a state of society*, in which the process of production has the mastery over man, instead of being controlled by him, such formulæ appear ... to be as much a self-evident necessity imposed by Nature as productive labour itself" (Marx 1993: 173, *emphasis my own)*.

He continued, "Since exchange value is a definite social manner of expressing the amount of labour bestowed upon an object, Nature has no more to do with it, than it has in fixing the course of exchange" (Marx 1993: 175).

In writing about the social trajectory of commodities, Arjun Appadurai uses Friedrich Engels' definition: in order for a product to become a commodity, there must be an intention to exchange the product and for the product to serve a “use-value.” In that sense, Appadurai calls on us to look at “the commodity potential of all things rather than searching fruitlessly for the magic distinction between commodities and other sorts of things” (Appadurai 1986: 14). Borrowing from Igor Kopytoff’s analysis, Appadurai goes to note that commodities move into and out of a commodity “phase” and that this phase (which may not be singular) “lies at the complex intersection of temporal, cultural, and social factors” (Appadurai 1986: 15). That is, commodities are not simply born into being—as was Marx’s point on Nature—but rather are transformed by the social processes working on and (to Marx’s chagrin) through them. Appadurai then goes on to divide commodities into four types: 1. commodities by destination, created for the purpose of exchange; 2. commodities by metamorphosis, things not meant for exchange, but which nonetheless end up being exchanged; 3. commodities by diversion, objects originally shielded from exchange, but also, ultimately exchanged; 4. ex-commodities, things that have either temporarily or permanently transitioned from their commodity state (Appadurai 1986: 16). For all of these, the notion of transformation undergirds the process of commodification. That is, Appadurai contends that commodities must go through a transformation that places them in their commodity phase. This process is socially constructed.

Igor Kopytoff expands this definition to note that movement into and out of the commodity phase(s) is culturally regulated, because “in every society there are things that are publicly precluded from being commoditized. Some of the prohibitions are cultural and upheld collectively. In Nation-State societies, many of these prohibitions are the handwork of the state” (1986: 73). Kopytoff notes that commodification at its beginning is made up local processes, determined by the cultural -- and therefore social, moral, and symbolic -- prescripts of the community. Kopytoff distinguishes between “small-scale societies” vs. “complex societies”

(1986: 89) in order to draw out the evolution of the commodity as being itself also more complex and ambiguous; the thing-commodity can be anything, just like its makers. Kopytoff writes, “in these small-scale societies [a thing’s] status in the clearly structured system of exchange values and exchange spheres is unambiguous...Anything that does not fit the categories is clearly anomalous and it is taken out of normal circulation, to be either sacralized or isolated or cast out” (1986: 89). In “complex societies” a thing too is complex because “a thing becomes the story of the various singularizations of it, of classifications and reclassifications in an uncertain world of categories whose importance shifts with every minor change in context” (Kopytoff 1986: 90).

How then, did dead human bodies enter this realm, if religious and moral proscriptions on the exchange of human bodies for use-value and monetary gain have been around for centuries? Much of the explanation for this has to do with the duality between talking and acting (Lupton 2003), which itself is grounded in the same abstractions that Marx claimed underwrote capitalism’s ability to veil human labor, social relations, and in effect human worth. Lesley Sharp has summarized this as “explor[ing] practices that simultaneously commodify the body while denying that such a process occurs” (Sharp 2001: 113). Using Arjun Appadurai’s model of four commodity types helps us think of human bodies transforming into commodities by metamorphosis and diversion (Appadurai 1986). Donna Haraway wrote that “bodies, then are not born: they are made” (Haraway 1989: 10, quoted in Lupton 2003: 23), a statement that aptly summarizes this project as a whole.

Body Policies

When I was an employee, my experience with bodies started after bodies were delivered. I had little understanding of the process of transformations that took place before bodies came to be cadavers or body parts as I knew them. I never met or saw donor corpses. I had only seen the "after" of the transformation—the prepared cadavers and body parts.

As part of my pilot dissertation research, I attended the American Association of Clinical Anatomists (AACA) 2014 meeting, to better understand the language and topics that were relevant to the field of anatomy and academic body donation organizations. This conference is the main meeting for academic clinical anatomists, which includes researchers, faculty, staff, and administrators of anatomy programs. During these meetings, which I attended in 2016 as well, current research and topics of the field are discussed, with around 11 consecutive sessions, over 30 presentations, and multiple symposia. The sessions most germane to the issues body donation organizations face are those organized by the Anatomical Services Committee, which bring together academic body donation organizations from across the country to discuss best practices and any new challenges or techniques people want to share.

Policies to Protocols

The Northern California (NC) Whole Body Program or the NC Program for short, is bound to use or allow the use of bodies for "medical research and education purposes" as is permitted through the Uniform Anatomical Gifts Act (2006), the one US federal law governing use of human tissue. Importantly, no oversight or regulation exists to standardize a protocol of use, which is noteworthy given how much regulation exists in all other biomedical programs. This lack of regulation drove me to analyze what standards whole body organizations implemented, or as they called them, "best practices"—a series of non-regulating, but definitive guidelines for human tissue use. For help understanding these, I turned to Berenice, the director of the Northern California body donation program.

Berenice was a middle-aged blonde woman. She carried herself like an administrator, which was appropriate to her position as a director of a university wide program on whole body donation. She was eloquent in bureaucratic management-speak, put-together, professional, and perhaps not surprisingly, exacting to the point of curtness. She wasn't someone who would engage in casual conversation. So I kept my questions for her only to best practices, an arena about which administrators are knowledgeable and in which they feel comfortable.

“So best practices are really kind of overarching...” I began, “what folks should do in [programmatic] terms of...reaching out to donors, receipt of donor bodies, and then the sort of legal aspects to it”

“Yes, it's about the shoulds and the shalls and the mays and the musts, right? It's very definitely about language...what's required and what appears to be a valid and appropriate practice,” Berenice responded.

“Absolutely...but there's also this wiggle room...,” I interjected.

Berenice responded with a skeptical tone, “I don't know about wiggle room, but certainly there are things you do because they're the right thing to do, and then there are variances based on what is allowed and what is needed.” Berenice paused and continued, “There's also a risk tolerance issue, so I'll give you a for-instance. Some programs, academic donation programs, may be very small, may expect only a few donors, and may use them only for their internal purposes. Some institutions may have a larger program with a larger-reaching mission, and specimens enough to send them to educational or industry partners. That depends normally on your size, but also on your risk tolerance. Does your institution care to support a transfer of a specimen to an educational partner that is not within your facility? If so, transportation and labeling and packaging and a different level of tracking then come into the must and shall category instead of the should or may category."

Berenice explained that standards, in the language of "best practices", exist as part of any institution that uses human tissue. For her and her organization, the use of whole bodies came with select standards, but she stated that each institution has some "variances." What Berenice left out however, was who in fact carried out those practices. As a director of a university body donation organization in California, her position was one of risk management. These risks extended from the general workplace concerns of safety for employees, having the resources to coordinate the collection and delivery of specimens, but also, and perhaps more importantly, being organized enough to handle the multiple requests for use of specimens, and to mitigate any potential misplacement.

Berenice's project was protecting and outlining the standards that make her institution function. She created distinctions: of language and of practice. Language was the "shoulds" and "shalls." Practices were the manifest labor. Both were in the purview of technicians, though. While she can speak to the language of "should" or "mays," the technician, as worker is the one tasked with the actual risks, with balancing the contradictions of biomedical market logic—of doing good and creating good.

One way the risk management was done was through tracking, part of the responsibilities of the NC Program as a whole, but one left to technicians to actually carry out. One of the technicians I spoke with, Tim (who will be introduced later on), told me that he had three rules: "Don't hurt yourself, don't hurt me, and don't mix up the numbers." What Tim meant was that in the lab, techs were responsible for their own safety, their partners' safety, and tracking the specimen, which entailed keeping the numbers right. Those "numbers" were of course the body's identification; each iteration of the body, as it transformed, was identified not by name but by its new numerical identity. It was important not to “mix up the numbers,” as Tim put it, because when the bodies were reduced to solitary arms, legs, or feet, they could be indistinguishable from each other. And tracking where each piece went was fundamentally tied to the best practices of the NC Program. If the NC Program were ever audited, accounting for each piece of a body would drive the perception of the NC Program’s legitimacy. The documentation was important for tracking bodies and their parts, and preserving their anonymity, as well as preparing for a possible audit.

Managers and the “Shoulds,” “Musts,” and “Mays” of Cadavers

Alex was the manager of the NC Program when I started my position at the training lab in 2008. In his emails he was friendly, but direct. He came off as more “by the book” than a “yes man.” Being “by the book” meant that Alex asked we (or I) submit requests for tissue within a particular timeframe rather than having a flexible request schedule, and keep accurate and duplicate chain-of-custody paperwork rather than leave the NC Program to track the tissue. My coworkers in the lab mentioned the same thing—that he was very exacting, a little too strict with the rules, they thought. It seemed an odd thing to say since we were all in the same boat, we were all working with human cadavers in a clinical setting. I thought that being “by the book” in this field was important or at least it was important to follow protocols, and even the online trainings that I was in the middle of taking seemed to imply that. My co-workers also noted he was a bit of a germaphobe, something I thought was both odd and somehow appropriate for working with cadavers.

Alex was a very clean, very meticulously neat person. His own office space was devoid of papers except the ones I had brought. It may have been because of all these meticulous features of his office, of the NC Program, that what Alex had expected and requested about tracking and policies made all the more sense. Little had changed in his office years later when I returned to conduct my ethnographic interviews, no longer as an employee of the surgical lab. During our interview, I asked Alex about the policies that the NC Program enacted, he said,

> "It begins with some basic things: preserving privacy, preserving anonymity, ensuring that there's a process in terms of requesting anatomical material from us so that it's not just...hey, we want to buy a head...but there is a process, there's a vetting process, there's an application process. There are institutional contracts that have to be put into place. You know, there are insurance requirements. There are all sorts of things like that that make the process a bit more cumbersome...which is good, because that means that you actually have to work to get...by the end of it you kind of realize that being able to have access to human specimens is a privilege, and not something to be taken lightly."

If they tracked where, how, and to whom specimen and cadavers were sent then they were keeping to the promised agreement that as the first users of the body, as the caretakers, that they would make sure the bodies of donors were used for appropriate purposes. Alex characterized this as "follow through on every promise and commitment that we've made to our donors and their families," a sentiment that others who worked in body donation organizations echoed as well. The way in which these promises were kept was through an intricate and multilayered process of vetting, auditing, tracking, and keeping accountable the users who requested bodies and specimen for medical education and research. Alex explained that his responsibility, and that of the Program, was to,

> Interact with our specimen requesters, all of the schools and other research programs that we work with that we've oftentimes worked with for decades, that depend on us for their cadavers and for their specimens. So making sure that they're getting what they need and that they're following our rules, which also includes going to those facilities on a regular basis, checking them out, meeting the staff, doing inventories, making sure that specimens are being housed and kept appropriately. We have a much more detailed set of rules and protocols now than we did, say 10 years ago. So it's making sure that they have those and understand them and implement them, you know...and then it's making suggestions on how they could do things differently or better. These days everyone is really in line and doing fine. We have great relationships with almost all of our end users. So it's that, and then it's dealing with more administrative things, working with budgets, working with longer term planning, bigger picture issues, more complicated things like media relations and just dealing with, you know, dealing with issues and problems as they come up.

The policies and protocols that Alex explained were a form of precautions, of regulations, often seen in bureaucratic organizations. As I listened to his explanations of why such measures were important, I came to understand that in their way, promises and commitments and care, were achieved through bureaucracy. Can it be that in a body donation organization bureaucracy is also care? I will come back to this later in this chapter in an assessment of care.

Witnessing Transformations of Bodies

After returning to the surgical lab for my dissertation research, I asked if I could visit the facilities of the NC Program. The two technicians at the Program were open to a visit and gave me the address and a date to come by.

What follows is a description of what I was told was a typical day at the NC Program's cadaver storage and processing facility. While the sequence of events is particular to the body donation organization that I observed, the processes by which this organization recruits, receives, and processes bodies are similar to others, as I learned during my attendance at the American Association of Clinical Anatomists (AACA) in 2014 and 2016.

Bodies Enter a Circuit

I had arrived to the processing warehouse on a sunny January morning. The facility was in a nondescript warehouse park, located in the industrial neighborhood of Caliville. Spaces in the warehouse park were rented by a dog food company on one end and a furniture store on another. I could smell the baked meat flavors from the dog food company, which was a bit jarring given that I was there to observe the operations of a whole body donation organization. The warehouse park was routinely trafficked by semis, delivery trucks, and cars zipping along one of the few north-south arterials on the western side of the city. The address that I had been given included the entirety of the warehouse park. To find the particular suite I had to call Tim, one of two technicians with the NC Program, the body donation organization I was observing for the day.

I rang the doorbell and Tim, the only technician working there that day, unlocked the glass door, which was kept locked at all times even though Tim was sitting at his desk looking directly at it. He mentioned later that “this was protocol” and that he had conditioned himself to keep the door locked in case he needed to go into the lab or the freezers and forgot to lock the door when he left the office to go in the back rooms. He did not mention why this was necessary or if the protocol had been developed in response to an event. I surmised that he did not want anyone coming in and wandering into the labs or other rooms if he was busy. They did not have a waiting room between the office and the entrance, nor an office between his desk and the lab.

I had known Tim for approximately eight years by the time of my visit, and had worked with him for three years when I was still employed at the surgical lab. Tim was a stocky man of average height, mustachioed with a short, clean haircut. He had a receding hairline that drew back at his temples leaving what could become an island of hair at the crown of his head. He also had a chin dimple. Tim was African American and had been raised in Northern California for most of his life. He lived in Robleton, a neighboring city to Caliville, since before he started mortuary school. I learned that day, he had started mortuary school when he was just out of high school.

Tim gave me a tour of the office: a small two-room space, very clean and meticulously tidy, with paperwork organized in piles along the three desks set up in the first room. There was little to no decoration on the walls, save a paper calendar, Occupational Safety and Health Administration guidelines and phone numbers, and HR paperwork on the cork board separating the two rooms. The second room was an office for Kenneth, his co-technician, a space equally tidy with a desk, a bookcase, and pictures of people I assumed were Kenneth's partner and daughter.

I was not surprised at how neat Tim and Kenneth's space was. I had known Tim for a long time and he was always dressed in very clean clothes, not usually in scrubs but in a light gauze coat and white collared button down shirt underneath. Tim had always managed to keep himself and the deliveries he brought to the CME lab spotless. I noticed, also, that he had different coats for inside the lab and when he left (to deliver bodies).

We then moved into the lab which was also spotless and tidy. Only a table and hose connections lay in the middle of the room. The counters were clear of everything except a CD boombox. Tim explained that this was the space where they prepared the bodies for embalming and disarticulation. He did not tell me what was playing in the boombox, but I imagined that each tech had a particular soundtrack or musical genre preference. We had moved into the back warehouse space where the fridge and freezers were when the phones rang (there was a phone in each office and within the "rooms" of the warehouse space). The donor had arrived.

Transforming Bodies

The transformation of persons in CME begins when the donor dies. By that point there have been many steps and conversations and paperwork surrounding the process of donation (donation procedures outlined previously), but Tim, Kenneth, and the other whole body donation techs did not personally liaise or interact with donors and donor families. The decision to donate and the actions that the living donor took to donate (i.e. communicating this to the family and the care team) are all done before Tim and Kenneth receive bodies. Even though the Program was involved in recruiting potential donors and speaking to living donors, families, and care teams, Tim and Kenneth were not involved in that process – despite the fact that they had the training through their previous roles in funerary homes. Tim and Kenneth were only involved in liaising with the transport company who would bring the donor body to their facilities. Death could occur in a hospital, in a hospice, or even a private home, but transport was always carried out through the same agency (not necessarily by the same drivers). Interacting with death, dying and the grieving families associated with that line of work were no longer part of Tim's and Kenneth's job responsibilities. As Kenneth put it, "I still consider myself a mortician, but what we do here is everything...from accepting donors... that have been brought to us, and processing them, finding out where they'll be best used, and then doing that work to them." Tim and Kenneth were needed for their expertise as morticians handling and preparing bodies, not necessarily for the level of grief training they could provide.

The transformation of the body is a process. It begins by stripping the identifying attributes of the dead person, transitioning them into the status of "donor." This involved issuing the donor a card while alive and through assignment of a death certificate, which registers the cause of death of the person and allows for use of the body (WGBH Educational Foundation 2011). Kenneth explained that staff from the Program,

> take the causes of death from the doctor and enter that into the system, and get that accepted by the county...to get a permit...that permits whatever use the person who died is going for. In this case, scientific use. So instead of someone needing a permit for burial, a permit to this program...[is] I think [for] its cremation/scientific use.

This permitting process registers the body in a system that tracks the dead in the county (presumptively for mortality figures, although Kenneth did not elaborate) and to account for the use and disposal of the bodies.

One important note about donation in the U.S. is that it is done on the condition of confidentiality and anonymity from the end users of the body since this helps, in the logic of the body donation organizations, protect the body. Lesley Sharp investigated this practice of preserving anonymity in her work on organ donation and found that similar traditions existed for deceased organ donors, although keeping donations anonymous was routinely put into question via public conversations and demonstrations of donor kin (Lesley A. Sharp 2001). Donation on the basis of anonymity has been standard practice by all body donation organizations, although the reasons for this have not been provided (David Gareth Jones 2016).

The staff of the Program did not spell out for me explicitly why they accepted and distributed bodies on the condition of anonymity, but as we shall see, across many conversations technicians and the Program's manager mentioned that such anonymity protected the body from identification in its use, which sometimes involved photography. I suspected that the idea of "protections" reflected concerns over an invasion of privacy—as if peering at the naked dead bodies of people were not invasive, but attaching their names made it so. I came to understand that anonymity and confidentiality actually served multiple purposes, and protected of the organization and its employees as much as the donors and donor families.

Keeping the names of donors anonymous functioned as a protection of privacy for the donor body and as a way to keep distance between the technician and the person who donated (and that donor's family). Anonymity also provided protection for the Program and the practice of science. Keeping the identity of the donor private saved the Program from moral opprobrium when bodies were put to use in research and education in ways that could seem distasteful to the family and to the public, such as in landmine testing (Associated Press 2004) or cosmetic services (Shapiro and Bartlett 2012; Pirnay et al. 2015), or when they were lost (McLaughlin 2015). High-profile instances of distasteful use and loss have been forgotten by the public years after they were first reported, and are not mentioned by the body donation organizations when reporting donor body use to families or in specifying the parameters of use in donation contracts, but these episodes did manage to make their way into people's consciousness thanks to occasional news reports about organizations, or lawsuits having to do with some problematic aspect of a body's use (Yerak 2017; Grow and Shiffman 2017; Mosendz 2014; Moore 2004).

For Kenneth and Tim, their work included keeping the donors' names secret. They knew who the person was and so did their Program colleagues, but they kept this separate from their day to day work. As we will see, disassociation of the body from the person happens through a series of steps, and in some cases, allows for the particular necessities of biomedical training and research.

Receiving Bodies

The corpse was first brought in via funerary transport service, wheeled out on a gurney, then onto a steel pan, then fork lifted and lowered onto two scales placed on either end of the pan. Tim donned gloves to take a blood sample, collected straight from the heart of the donor via spinal needle syringe. The sample would be used for a blood borne pathogen screen to rule out the presence of HIV and Hepatitis B or C. Tim wrote down the name of the donor on a list and assigned them a number, the 26th donor of the year, hence to be known as 16-026. For Tim, the assigning of this number was "not...reducing them to a number, but in order to keep the anonymity...we don't use names. We just use identification numbers all throughout from that point on." It was interesting that this was one of very few records that connected the body and the name of the donor. The body was then wheeled into a fridge, awaiting confirmation of a negative screen.

When I later asked Tim to describe how he did what he did, he explained,

> We're kind of the first line when somebody donates to us. The body comes here first. We take blood for serology to make sure there's no contagious disease. Then we evaluate, as far as height, weight, sex, what medical history, scars, broken bones, surgeries, those kind of things. Then depending on the requests we

> get, we try to match the best donor for the best request. There are some [requests where] the full body goes out. [Other requests are looking for] a smaller portion that we have to disarticulate or dissect it down to that particular size…to do research on.

After the negative results of the serology were returned, as I found out on another day, the body was prepared by first undressing it, then shaving its head and face of hair and ultimately assigning it to a project to be either embalmed whole, or to be dismembered into a torso, arm or even solitary head. As Lesley Sharp (Lesley A. Sharp 2001)has noted in her work on brain-dead organ donors, the donor can only clearly be identified as a cadaver when "the individualized self ceases to exist" (Lesley A. Sharp 2001). In other words, the cadaver is enacted when the personal attributes such as name, clothes, hair, identity, or attachments to the social are stripped bare.

From Tim I learned that the technicians referred to the whole embalmed bodies as cadavers, while preferring to term the individual body parts "specimens." Tim also used other language to describe the preparation of bodies. Body parts were not cut off; they were "disarticulated." Torsos were not dismembered, but "harvested." This language reflected the abstraction necessary to carry out acts that out of context would be considered grisly and shocking. Much like Carol Cohn highlighted in her research on nuclear bomb engineers, to continue doing the work technicians practiced a "sanitized abstraction" (Cohn 1987). It was unclear to me where these terms came from, whether they came from the mortuary world or if they were adopted from the biomedical labs under which the Program was often subsumed. "Specimen" was a term used in labs (I heard this term in my tenure as an employee of the surgical lab and also as a researcher at the second site). It referred to a non-specific material to be researched or tested. "Disarticulate" was a clinical term. Clinicians would use this term to describe the separation of joints. "Harvest" seemed to come from both, or fit in both, just like the Program and just like the bodies. The term was milder way to refer to the process of body part removal or reduction. The Program catered to the needs of researchers and clinicians alike. I did not ask Tim what these words meant because I had learned them years before. They were presented as a matter of fact, and at the time, in contrast to my later visits as researcher, I had accepted them as someone new to a cultural milieu tends to accept words and behaviors when adapting to the circumstances.

Ultimately, talking about and doing the “disarticulation” and the “harvesting” enacted the next step in the transformation, from “donor” to “cadaver” or “specimen.” Why were these the terms that were used? Tim answered,

> Well, usually I'll say it's cadaver, meaning the whole person, and specimen as in a smaller portion of a cadaver, versus saying, "Oh, we have a part…" We're dealing in one particular area, anatomical material usually I'll use that once the specimens have been used. Then it becomes anatomical material…only because it may not be a complete arm anymore. Now it may be dissected down to 17 different parts of that particular arm, so it's no longer an arm, it's now…you know, that's just me. Everybody's a little bit different about that sometimes.

<u>Traced out the institutional jargon for the transformation was as follows:</u>

person → cadaver → specimen → anatomical material

<u>In lay terms, the transformation would be:</u>

person → corpse → head (or other part) → flesh and other human tissue

Figure 1: Linguistic transformation of bodies

Tim informed me that throughout this process the body was wrapped in sheets or plastic and kept in a body bag. I noticed this when the first donor was brought in since the body was wrapped in white sheets within a white body bag. When Tim let me peer into the fridge where he wheeled this donor and where other bodies were waiting serology results, I saw the same: white bags on steel strays lining the inside of a walk-in fridge. When Tim showed me the two walk-in freezers, I saw the same except no body bags, just packages nebulous from condensation. There were no blood stains on the final wrappings and little to no fluid, since Tim and Kenneth made sure to change the wrappings throughout the preparation process of embalming, or disarticulation and harvesting. I asked about these practices of individually wrapping specimens and Tim responded with a matter of fact response,

> Just simple ease of maneuvering, and anatomical material is not embalmed, it's kept frozen, but then sometimes you still have a little bit of the ice, the leakage, the condensation. So you keep it all in bags and you know, a cardboard box does get wet. So the quicker you can go from the freezer to the truck the better. Yeah, so that's why you bag it and then we put a plastic bag inside the box, and then everything's individually bagged, goes inside the plastic bag, so hopefully nothing happens.

Tim also noted that he had to "make sure that all specimens are labeled at all times, and that they're being cared for well." He had all of a sudden grouped all bodies, body parts, cadavers into one category.

"Caring for a specimen well…can you talk a little bit more about that?" I prodded.

Tim began to list protocol. He mentioned that "caring" for specimen meant having an identification number, meant being enclosed in a container, meant being wrapped or maintained in solutions, meant being kept in a locked space, and meant having a request form, a chain of custody with explicit documentation of what and for what the specimen would be used. And here Tim stopped and added, "It's still a donor also. It's still a person. It's part of a person, and they were generous enough to donate; we should take care of them."

"Where does that come from? Taking care of them in this way?", I asked.

> I think that's just respect for the donor, and yourself. You shouldn't…like the old TV shows you always see a butcher who always has an apron that's full of blood. You know, that never looks good. But on a butcher it's more acceptable. If you walk into a lab and see that, you think that's disgusting, because you're dealing with human parts. So I think it's along the same lines…Sure, just because you work around blood doesn't mean it has to be all over you. Whether it's washing your hands ten times during a procedure and changing an apron two or three times, it's just…I just think it looks bad. You never know who's going to walk in, whether that's other lab people or it could be a technician to fix something, and he's going to look at you and form an opinion about the entire building that you're in, or whatever, your Program, you…and that's not what you want.

Indeed, that's not what Tim or the Program wanted to be perceived as: butchers, or worse, body sellers. The legacy of cadavers in medical education is one that is rife with gore.

Dead bodies are for the most part perceived as macabre, especially those covered in blood or split apart. This was why Tim and Kenneth took painstaking care to control the messiness of the process of turning donor bodies into cadavers and then specimen. It was why they maintained closed and locked doors, why they used scrubs when working in the lab or delivering the cadavers and specimen, and why Tim kept two coats: one for deliveries and one for his work at the facilities. These demonstrations of cleanliness had a particular purpose: to demonstrate that they, the techs, were different than their historical counterparts, the resurrectionists and graverobbers, those non-biomedical workers. To Tim and Kenneth, providing cadavers for dissection, research, and education mattered.

What Tim expressed is paralleled in Byron Good's (Good 1994) analysis of the medical school anatomy lab. Although the anatomy lab is a space for training and knowledge, the material circumstances are aligned with those of the Program. There is a logic and accompanying reorganization of the circumstances within these spaces. Good argues that,

> within the lifeworld of medicine, the body is newly constituted as a medical body, quite distinct from the bodies with which we interact in everyday life, and the intimacy with that body reflects a distinctive perspective, an organized set of perceptions and emotional responses that emerge with the emergence of the body as a site of medical knowledge (Good 1994).

As Good explains, and Tim implied, the donor body is being remade. The intimacy with which Tim interacts with the donor body is the beginning of the transformation, by balancing a connection to the bodies of everyday life and the body as the site of medical knowledge. Kenneth echoed these words in his explanation of what he did and what the program did.

Making Cadavers

Of the two techs at NC, Kenneth was the junior technician. He had started in 2009, a little more than a year after Tim had started working for the Program. He was younger than Tim, leaner and more physically fit looking with a tattoo sleeve on his left arm. He was friends with the Program Manager from their time at mortuary school and had come to the Program after running a mortuary home. As Kenneth explained,

> I had goals when I got out of mortuary college that...well, my ultimate goal was actually I thought I wanted to own, to purchase a funeral home and own it and operate it outright. And primarily for financial reasons, because most of the owners of funeral homes that I worked for were all pretty wealthy. But if I didn't do that, I wanted to run a funeral home...And so bouncing around to a few I didn't work at many, but I kind of went up the ranks and got to a funeral home in [Stantown] where I started out as an embalmer and a director, and eventually over the eight years I was there ended up being their managing funeral director. So I went from just an embalmer to actually one step below an owner, which was managing director...my life started to get really hectic, the stress of working at a funeral home started to take over and so a lot of things kind of came to a head, and I ended up leaving the job.

I knew both Tim and Kenneth had been professionals in the mortuary business, like most everyone working for the NC Program, because of conversations we had had when they would drop off or pick up specimens during my time as an employee at the CME lab, but I didn't know how extensive their backgrounds in that field were. Additionally, I had little knowledge of how extensive Kenneth's time and rank within the funerary industry had been. Like Tim, Kenneth had grown tired of the industry and decided to apply to the NC Program. Kenneth was a mortician, a licensed embalmer, which was what the NC Program needed.

On another day when I returned to the facilities to speak with Kenneth, I asked him how he described what he did and he began, "we do a little bit of everything...well, we care for the person as they arrive. Sometimes other than the transport company we're the next person or the last person to care for the person after they've died. And that starts with them arriving here." He launched into the same protocol that Tim had listed and that I had witnessed, the protocol of drawing blood, examining the body, weighing it, measuring it, checking dentition and any medical scars, and assigning the donor a number, adding "they get a number, they come in...almost kind of give them a new identity." But Kenneth added, "our primary job...we're embalmers, we make cadavers, and we hold them here until they're ready to go out."

The concept of making cadavers helps explain what it means to transform bodies. Kenneth describes a particular process that is standardized by the NC Program but also across the industry. Donor bodies are received and processed to be turned into something else. The phrase “making cadavers” stood out because I had never heard them describe the preparation process as that.

Kenneth said, “I now know, [because of] working here, that there are two different types...unembalmed and embalmed, but so when I say ‘I make cadavers here,’ I'm referring to embalming or preserving a donor to become a cadaver to be dissected at a medical school...” Now Kenneth made a distinction that when he “made” cadavers before, in his mortuary days, he was making cadavers for viewings and for burial. But now, working in biomedicine, he made cadavers to be dissected.

An important note to make here is that the NC Program was a part of the medical school which created the program to provide cadavers for use by the medical school. While the NC Program provided cadavers for dissection in medical school curricula, they also provided bodies for all aspects of the curriculum—first year training, continuing medical education training, biomedical research at the school, and, increasingly, for industry and small research firms outside of the Northern California medical school. Cadavers for dissection were, therefore, not just cadavers for dissection by first year medical students, but by students, researchers, instructors, and device developers who had an affiliation with medical training. This will be a key feature in upcoming sections and chapters.

To return to the making of a cadaver, there is an inherent tension when creating the cadaver. On the one hand, the cadaver is a tool for dissection, medical education and research.

On the other, it is a human body with all the attributes it carried as a once living person. Kenneth demonstrates that tension in his description of what he thinks about cadavers, made or unmade.

Kenneth: For me personally I think a donor to me is still a person. And I consider all these people still people

Stephanie: Who are "these people?

Kenneth: The cadavers, people who have died. So I use donor a lot because I'm referring to them as a person, for me. I think technically once we tag them, once we put that ear tag in them and then they get a specimen number here, they either become specimens or they become cadavers. So I like to think of after they're tagged, they're technically a cadaver, either embalmed or unembalmed, and then once they're harvested out...so we start removing pieces, that cadaver becomes specimens. But, yeah for me, donor would mean dead or alive, somebody who has given their body to this program. Because I like to think of them as still people.

Even while detailing the personal attributes that a cadaver/specimen has, Kenneth tries to dismiss the false dichotomy of transformation: that once a donor is made into a cadaver or a specimen they lose their attachment to their humanity. This Kenneth is flatly dismissing. He sees donors as persons and he sees cadavers as people who have died and been embalmed. This is an important moment because people are not necessarily the same as persons. The donor is a person with agency, with a will, with a name. The cadaver, and by extension the specimen, are people, derived from people, but they are not persons. They are part of a continuum to the concept of the person, but these cadavers are human, not persons. Similarly, the law treats these distinctions as important in delineating the rights and responsibilities of next of kin, the estate of the deceased, and the stewards or caretakers of the donated body. As Kenneth explains, donors going through a material transformation, from person to cadaver/specimen retain connection to their previous form.

Good's (Good 1994) argument is again useful in detailing how Kenneth balances these attachments. Situating Kenneth's connection to the donor/person and the cadaver/body as "an organized set of perceptions and emotional responses that emerge with the emergence of the body as a site of medical knowledge" (Good 1994) helps us understand how Kenneth sees the work as “personal. You're actually hands-on caring for someone...I mean, you almost have a personal relationship with some of the donors that come in here.”

Caring About/For the Cadavers

Care is a funny expression. Tim and Kenneth expressed a level of regard for the bodies they worked with, that went above following protocol. Tim said that following procedure, the cleanliness and the tracking and the keeping of the specimen under lock and key, was caring for it. Unlike inanimate objects, the person needed to be taken care of in all these ways. Kenneth too mentioned that the type of work he did was care work. If Kenneth and Tim are the last ones to “care for the person” after they die, it begs the question of how that’s done. But Tim and Kenneth also implied that caring for the specimen meant caring for themselves—in keeping socialized attachments to the donor as person and the body as human. Two forms of care were introduced in the conversation: caring for (practical) and caring about (concern).

Anthropologist Elana Buch (Buch 2015) explains that “care in English speaking places connotes both affective concern (caring about) and practical action (caring for)” (Buch 2015). The care work that technicians in body donation organizations do is the enactment of concern and practical action. To delve a little bit deeper, Annemarie Mol (Mol 2008), suggests that care is at the intersection between competing notions of the “good,” that is, care is always seeking to create “more bearable ways of living in—or with—reality” (Mol 2008). Body donation technicians are at this intersection—of balancing the “good”—in caring for the body in a good way, of doing good work, and, also, of creating “goods”—making a great specimen that in turn makes good research or a good training. How is this done? Through everyday practices.

Care as practical action was present in Tim’s listing of protocol. Throughout the process of preparation Tim needed to take steps to standardize the treatment of cadavers. He was taking care of the specimen by first processing them as a donor, stripping names, hair, and social attachments. He was also making sure to keep the specimen in fridges that would preserve them and keep them safe; they were, after all, kept behind locked doors and in regulated access to freezers and fridges. Both techs were also responsible for keeping track of the paperwork.

Tim and Kenneth also took care of the specimen through the process of embalming. While a highly technical ritual, and one that made use of toxic chemical formulas, there were certain elements that necessitated a different attention, a type of care that connected more with the persons involved than with the technologized protocols.

Tim had done embalming for more than two decades. It was partly because of this experience that he was still unsure about donation. To the question of whether he would donate, he answered,

> It is kind of a funny question…when I was working at one place and this lady I worked with had been sick off and on for a while, and then her daughter had worked there also, and then finally she died and her daughter came to me afterward and said, "You know, my mom was nervous." I go, “why?” "She didn't want you to see her naked." I go, "Well, I wasn't looking at her naked…" "Well, you know what I mean." It was one of those things like she felt uncomfortable that somebody who she knew…”
>
> “Would see her…[in a] very kind of private, very vulnerable position?,” I asked.
>
> “Exactly, and it's like well, you know, we do our best to cover up things, but it was just one of the things …like Wow! You don't think about that,” he said and quickly added, “And I would say, I don't want Kenneth to see me naked because he would be laughing, you know?”

Even while acknowledging that embalming was a technical event, that the body was just a body, but one that needed to be treated according to convention, Tim used the example of having been surprised by the consideration that someone would care about being seen naked—a consideration that he himself later adopted. He was taken aback that his old coworker did not want him to see her naked postmortem and similarly, Tim did not want his current co-worker to see him naked postmortem. Tim demonstrated concern—a concern about the social connection to the body and the dead person’s wishes. He cared about the body, about being seen as a body.

Concern or caring about was demonstrated in the way that Tim talked about respect. Tim paid special attention to the aprons and the mess of of the procedure, of any procedure involving specimen. He wanted there to be respect for the specimen, the person, and himself -- and this translated into cleanliness and order. Following protocols of cleanliness became a defining feature of his work; the same could be said of Kennth too. Respect will be discussed further in a later chapter (see Chapter 4).

Kenneth saw his role as a technician as one that followed the protocols and standards of his mortuary training. Ostensibly through his schooling, he learned “certain procedures that you can do that you do the same way every time.” And following with that tradition, Kenneth continued,

> Tim and I follow a pretty strict protocol when it comes to embalming. And embalming or preserving donors here and turning them into cadavers, right? It's different at different campuses. We have a procedure that we follow here, so that would be our standard of care when it comes to embalming. And it seems like different campuses have different ways. Some gravity embalm. Some only inject to one point. And we inject in two different points…things like that. And you can start breaking down procedurally what standards of care you have for each procedure

And like the concern demonstrated by Tim, Kenneth also had specific standards he invoked for caring about the specimen. He explained that an important part of standard of care was “keeping them covered.” He elaborated,

> you know you have to strip everybody down here at one point, so trying to keep decency or respect as far as covering their parts… we try to do that, just because like I said, donors are still people, so yeah, they're going to come in here. Yes, they're going to get embalmed or taken apart, but we can still respect them. So it's like that level of care. I guess caring for them the way you'd care for yourself, even though they're dead. And then those standards of care I think in general would be the same level of care that you'd find at funeral homes, so it's taken back from my mortician days, because I'm still a mortician but apprenticing and learning during the different jobs that I had that you ultimately still had to care for the person, even though they were dead. You have to be nice to them, right?

Indeed, being nice to the cadavers, being attentive to the concerns (at least in life) of donors, and showing respect for the donor body were all part of the concern that lay embedded in the practical acts Tim and Kenneth performed on these cadavers. Kenneth adds concern to the technological standards of care he had recounted earlier. Shifting from a description of a routine procedure, Kenneth and Tim cover the cadavers' more intimate areas, because they saw themselves in their work. They cared about the cadavers in a similar way that they would care about themselves.

In elaborating what else was covered, Kenneth offered that the head, hands and feet were also wrapped. This was a technological procedure, one that required a wetting solution with fabric softener, phenol, glycerol to keep the areas preserved, but also one of concern because the heads, hands, and feet were identifiable markers.

"So I know they cover them up just because…I don't want to say it dehumanizes them, but you take away the hands and the feet and the head, and maybe it's not going to freak somebody out as much if they have to see the body", he said, shrugging a bit.

"It's interesting that you say 'dehumanized,' but you're not wanting to use that word", I responded.

Kenneth's response was sobering but clear, "Yeah, because people...they've never seen a dead body in their life. I don't think they're going to want to be able to relate a hand or a foot or a head or a face to someone that they may know…or it just makes it more, not inhuman or dehumanized, but seeing the hands and feet may make them appear to be more real than not."

All of these instances of calling attention to the human but also backing away from the specimen's inherent humanness, revolve around the demand for respect. When Tim and Kenneth talked about respect they were talking about respect for people. These people could be themselves, Tim and Kenneth, their co-workers, the families of the donor, or the memory of the donor body. But as transformation of the bodies into cadavers, or specimen, or anatomical material proceeded, respect was less about the "person" on the table, and more for the person holding the scalpel, coming into the room, or using the cadaver. Respect, in effect, involved the technicians imaginatively transposing themselves onto the body, cadaver, specimen on the table. It was a projection of themselves and their wants and needs over the acknowledgment that the specimen was itself a human too.

Care, whether technical or emotional, demonstrates that there is an inherent tension in what should be done and what could be done. There are moral reasons, and technical ones. It is hard to disentangle the two in the work Tim and Kenneth do.

Technicians are tasked with balancing a promise for the good, to do good, good for the donor, good for the families of donors while producing goods, goods of a certain quality, goods that produce better clinicians, goods that aid in good research. This is an example of what anthropologist Joel Robbins' has argued for. In a call to do an "anthropology of the good," (Robbins 2013). Robbins urges anthropologists "to explore the different ways people organize their personal and collective lives in order to foster what they think of as good, and to study what it is like to live at least some of the time in light of such a project" (Robbins 2013).

However, as we have seen, technicians are not agentless workers who exert only the demands of the institution. Technicians are self-identified care workers. They bring their embodied experiences into their work with bodies, as well as abiding by the parameters set by the organizations that employ them. I would like to further explain and situate the unique role that Tim and Kenneth play as care workers because they deviate from the traditional notion of care worker, as understood following Sociologist Arlie Hochschild's seminal work, *The Managed Heart* (A. R. Hochschild 1983).

Arlie Hochschild defines care work as a "hot potato job." Care work is often characterized as "passed over" labor, that is labor that gets passed over to someone else (A. R. Hochschild 2013). It is also labor that is valued less and, in effect, passed *down.* Hochschild explores care work as synonymous with emotional work, or emotional labor. She argues that care work/emotional labor is “the work of trying to feel the appropriate feeling for a job either by evoking or suppressing feelings—a task we accomplish through bodily or mental acts” (A. R. Hochschild 2013). This is how care work is defined. Care workers have different reasons for doing the work they do, but care is central to their responsibility; it means caring for and sometimes, caring about. For Tim and Kenneth, they care for bodies. The type of care they employ to care for bodies can be technical or emotive, but it is central to the labor that they are paid for. Tim and Kenneth evoke feelings of connection to bodies when they imagine treating themselves on the table, as part of the process of treating the bodies as they, the techs, would like to be treated. Tim and Kenneth likewise suppress their feelings of connection when they need to carry out the embalming or the harvesting of bodies, creating emotional distance from the body, in part linguistically through the sanitation and euphemizing of the body and the labor, and also physically, through the changing of sheets, wrappings, aprons, and clothes. Such practices enact care, both for the anatomical material and for themselves. And while they are not doing emotional labor for the bodies they receive and make into cadavers and specimens, they nonetheless do perform care work within the responsibilities of their position.

Tim and Kenneth are not, however, the typical demographic for a care worker. As Hochschild explains, the care worker is most often a female service worker doing emotional labor. Increasingly, the care worker is also a migrant female worker (Dumitru 2014; Parreñas 2015; Miyazaki 2018; Kofman 2000; A. R. Hochschild 2003). While it is thus not a perfect fit, I believe the term still applies. Even as global trends for care workers skew towards employing (and exploiting) vulnerable women of color and an immigrant workforce, the work of Tim and

Kenneth can still be analyzed as care work. This work takes form in a number of places, with different persons, and is often complicated by its monetary valuation.

Economic sociologist Viviana Zelizer analyzes the unique and often contradictory ways in which life, death, and intimacy are monetarily valued. Zelizer explores how such valuation is tarnished rhetorically, but normalized in practice. She uses a historical approach to analyze the monetization of life, death, and intimacy and in doing so shows the how such monetization is actually normalized and adopted in society. In her body of work, Zelizer has researched the way life was valued and normalized by insurance markets (Zelizer 1978), how children came to take on more emotional value in familial relationships as their monetary contribution to the homestead declined (Zelizer 1985), and how the monetization of intimacy has generated, maintained, and reframed the relationship between intimacy and economic transactions (Zelizer 2005). In her studies of life and death through insurance markets she showed that the actuarial action on life insurance, while at first seemingly profane, was over a less than a century adopted into end-of-life rituals in the US (Zelizer 1978). Zelizer showed that simply accepting said rituals as a social fact was not adequate, because "treating the valuation of life as an ordinary market transaction will not do: it denies the specific meanings of that transaction and occults the process by which people arrive at appropriate compensation" (Zelizer 2011: 15). This point is echoed in all her work and resonates across my analyses of bodies in CME as well. Treating money and life (or death in my case) as a simple market transaction does not do justice to the practices, ideas, values, and work of the technicians. The bodies at the center of these practices are not merely objects traded and circulated in this system, there are human meanings and social processes involved in that labor. The labor involved in using and caring for bodies testifies to those people's sense of self. It is through labor with dead bodies that we can understand what care for dead bodies is, because as Zelizer notes, “people are constantly attaching economic value to human lives and making strong claims based on those values”(Zelizer 2011: 15). I extend this argument, noting that attaching economic value to human life includes all the processes of life, pre-birth and post-death.

Zelizer studied the combination of caring labor and economic activity in a number of spaces, but importantly she analyzed the emergence of care in economic organizations, or put differently, in places of business. For this analysis she noted that relationships that are strictly defined by their role in efficient productivity see care as noise or threat to efficiency and great pains have been taken to prevent the creation of intimacy in the workplace (Zelizer 2011). Between sexual harassment policies and the policing of nepotistic practices, workplaces are scrutinized to drive out the presence of intimate relationships. However, care and caring relationships still occur in the workplace. Reasons can include the need to socialize into the work and culture of the organization (which I will explore again later) and the sometimes inevitable socializing at work between employees. Care developed between workers creates more than efficient productivity, it brings about solidarity, common purpose, and a sense of belonging. Workers’ connection with each other also brings about a connection to the work. The effects of these connections are increased awareness of safety, stronger communication, and increased efficiency and productivity (Zelizer 2011).

Thinking about the NC Program and the work Tim and Kenneth do, it is clear that caring relationships might be considered unnecessary for the efficient “making of cadavers.” However, understanding theirs as a caring relationship helps explain how, under the practices and parameters of their work, Tim and Kenneth are continuing to balance the good and make good out of an important but morbid practice.

Balancing Care, Work, and Bureaucratic Needs

To understand how technicians come to inhabit this unique position in the institution of biomedicine, how they infuse their values, sense of self, and drive to "do good," I turn to Paul Brodwin's analysis of the everyday practices care workers carry out within institutions.

In *Everyday Ethics*, an ethnography of psychiatric staff members in a Milwaukee psychiatric service agency, Brodwin (2013) analyzes how staff members combine different forms of knowledge – that learned from formal procedures, interactive knowledge, and the knowledge of the workaround. Brodwin's interlocutors, "learn the acceptable warrants for action: how to justify what they do as therapeutically effective and intrinsically valuable. They learn to frame their work as good in two senses: 'technically competent but also conforming to collective ideals'" (Brodwin 2013: 56). Brodwin shows us that staff at the Milwaukee agency through "formal manuals, face-to-face instruction, and infinite improvisations" (Brodwin 2013: 56) carry out their work in order to provide services to their clients, to do good. This good, however, is not achieved without tension as staff members differ in agreement with the institutional logics or simply cannot use it to do good for their clients. In this tension, the improvisations occur.

Brodwin explains that staff at the agency are generalists with little training in social work and even less in clinical psychiatric services. Even so, they "inherit virtually limitless responsibilities" (Brodwin 2013: 57) since the protocols under which they carry out their work are loosely defined and the accomplishments that are expected of them are not substantiated by the resources at their command. In between the work they must accomplish, the main expectation is that the staff advance the interests of both the clients and the institution they are a part of, "even when these contradict each other" (Brodwin 2013: 57).

In Brodwin's analysis, case managers are engaged in a balancing between the demands of the therapy and the demands of doing "good" or "better" for their patients (Brodwin 2013). In fact, caring for clients "is a matter of daily action, of trying, adjusting and trying again" (Brodwin 2013: 89) of tinkering with the at-hand resources. For Tim and Kenneth, the parameters under which they care for bodies are in some ways only there as parameters, not as guidelines. Like Brodwin's case managers, the ideology of treatment is less important than the accomplishment of their work, of making good. For Tim and Kenneth, their care work is what Brodwin called "craft work" because they "rely on specific techniques and instruments" (Brodwin 2013: 89). Tim and Kenneth work within the practices necessary to make cadavers and specimens and those require a knowledge of mortuary techniques, but also of paperwork and other bureaucratic management.

However, Brodwin's work documents the unique and ethically taxing work that case workers must accomplish under exacting circumstances—balancing the demands of their organization (led by treatment plans and biopsychiatric measures, those of the bureaucracy) and those of their client-patients (the human want and need to live, thrive, and be free). Admittedly the stakes involved in case management are different. Clients are living persons who can experience mental and emotional harm. The work that Tim and Kenneth carry out does not have the same effect, at least not on the bodies which they care for. However, considering this care work from another angle, we might note that Tim and Kenneth can themselves experience a type of harm in the work that they do. To care for bodies, and in the process also care for themselves, is the parallel between these works.

Care through Bureaucracy

Care is not only demonstrated in the practices of handling the bodies, but in the tracking of the bodies, body parts, and the users who request these. Care is manifested in care for the safety of the person, the safety of their job, the continuance of the NC Program, and the sustained research enterprise. Care in bureaucracy is a constellation of beliefs and actions that combine in bureaucratic labor to keep medical education and research going.

Bureaucracy can maintain order, reduce harm, and ultimately, reduce risk. We know there is an inherent risk, as Berenice pointed out, in the handling of the dead. Bureaucratic labor can help minimize that risk by controlling who, how, and where anatomical material is accessed. Bureaucratic labor prevents disorder. And disorder hurts vulnerable people.

It could be hard to pinpoint who at the NC Program is vulnerable. Staff are vulnerable to physical and emotional workplace accidents in the receipt and transport of bodies. They are also at risk of losing their jobs if body donations dwindle, if academic institutions switch to digital anatomical trainings, or if mismanagement of donors occurs. And while donors are vulnerable to loss, the repercussions are felt by the families of donors and the organization. Hence, to limit vulnerability and, therefore, disorder, bureaucratic mechanisms here inversely act to *in*clude -- not *ex*clude -- the different actors involved in the circulation of bodies for education and research.

Contrary to how scholars have depicted bureaucratic processes (Herzfeld 1992), the institutional calculus in CME is working to protect the technicians, managers, and the bodies (or rather, the donors and donor families) from experiencing harm due to lack of order. Alex's description of the precautions taken with cadavers, specimen, and anatomical material demonstrate a shared humanity with the inanimate bodies at the center of their work.

Additionally, analyzing these bureaucratic processes as labor allow us to identify new ways of caring.

And as Buch shows, “care becomes an increasingly important site for understanding emerging forms of governance” (Buch 2015: 279) especially as these forms of governance demonstrate what are peoples’ (human or nonhuman) membership, roles or statuses in society.

Conclusion

If we look at the everyday, the particularities of the common, we can see that they are indeed not common at all. Marx wrote that a commodity is at first a very obvious, common thing, but is actually very strange (Marx 1993). Taking heed of the anthropological call to make the familiar strange, I looked to the strangeness of the dead body and its use as a tool to understand mechanisms of commodification.

Through a process that starts with no set proscriptions but some intended best practices, each organization receives, processes, and sends bodies in the manner it sees necessary. The standards in place are dictated by the institutions governing boards and, very tangentially, federal guidelines that limit an explicit buying and selling of body parts. However, neither federal, nor state, nor organizational policies stop the commodification of the body. In fact, the system of medical education is predicated on the quiet commodification of donated bodies -- even while it tries to ignore, or at least downplay, its existence. At the same time, however, actors within this system, those people who are employed to deal with the everyday particulars of receiving, prepping, and transforming people’s bodies into commodities, act with care. Using bodies is both necessary for the biomedical institution, and very strange outside of it. Dead bodies are a common need in biomedicine, but those that are willed to body donation organizations are submitted to unique processes, projects, and procedures over the course of their “lives.” This is not done with abandon, but with great care. Technicians think through, reflect their values and their organization’s values, and reflect their sense of self onto the bodies. This comes through in the work that happens with and on bodies. In fact, work, good work, is what this is all about.

Chapter Three: Using Bodies

Death is therefore multiple and dispersed in time: it is not that absolute privileged point at which time stops.

—Michel Foucault, Discipline and Punish: The Birth of the Prison, 1975

Introduction

"You actually have to work to get [cadavers]," Alex, the manager of one of the body donation programs told me. And work it does take. One of the requirements for getting access to cadaveric material is to be vetted by the body donation organization. Most (albeit not all) educational and research spaces apply to use human tissue through a process that requires demonstrating that they have adequate accommodations, security, and viable research purposes. The process involves, as one Training Lab Manager put it, "regulation."

This chapter deals with the varying understandings and enactments of regulation. We shall begin with an analysis of national standards for the use of bodies (a sort of regulation), and then move on to consider the practices that actually make up regulation for use of bodies. These regulations play a crucial role in the tactical objectification of the body, through how they shape practices that treat bodies at once as a good and also a priceless object, a dead body. These practices however are not merely instances of "following rules," but rather are a part of that patterning of social life which is not seen, but taken for granted. Drawing on Bourdieu's theory of habitus, I explain the ways in which informal practices are learned and implemented. In this same vein, I analyze how technicians' learned behavior feeds into and is a product of the ambiguity of the work, recreating a cycle. Technicians responses to their work are a product of the system that keeps the issue, conversations, and concerns about work with bodies hidden; it is also part of the professionalization of technicians and use of bodies in continuing medical education (CME) training and research. In this chapter I will refer to CME as “bioskills” when describing the professional concept and industry. I will continue to refer to the training labs as CME training and research labs when describing the ethnographic locations. I then go on to examine how the hidden aspect of this work and the professionalization of technicians come to a head, through a vignette of a technician’s experience discovering a boundary delimiting what counts as legitimate and acceptable action, by crossing it.

On Regulation

The “work” of acquiring bodies that Alex referenced was, he explained, “not just, ‘hey, we want to buy a head’…there is a process, there's a vetting process, there's an application process. There are institutional contracts that have to be put into place. You know, there are insurance requirements. There are all sorts of things like that that make the process a bit more cumbersome.”

What Alex and other body donation organizations aimed to make cumbersome, some users saw as both a speed bump and at the same time a safeguard. While far from anything as stern as the term “regulation” conjures, the vetting processes that some (though not all) body donation organizations put in place attempt to control and formalize a tradition within biomedicine that continues to be fairly loose and decentralized, though this is slowly changing.

In order to get tissue, users must contact a body donation organization like the Whole Body Program, or a for-profit commercial entity like Science Care (which operates across the country), and must fill out a request for use. The request for use can be found on the organization's website[2] or can be obtained through institutional connections with people in the organization, such as the Whole Body Program staff whom I shadowed.

These forms, typically called Anatomical Material Request Form or some derivation of that, are usually available on body donation organizations' websites. The language on these forms states that a request for tissue requires a contractual agreement, that commits the user to follow agreed-upon standards for the adequate use of cadaveric material, referred to as 'anatomical material.'

For example, one body donation organization, United Tissue Network, which has offices in three states and partner facilities across the U.S., has an user contract available on its website.[3] In order to request anatomical material, tissue, or as I've termed it, cadaveric material, the organization specifies that users (also known as applicants) must,

> handle human tissue obtained under this Agreement using universal precautions, as mandated by the U.S. Occupational Safety and Health Administration Bloodborne Pathogens Final Standard. Furthermore, APPLICANT agrees to designate a qualified individual to serve as APPLICANT's biohazard safety officer and shall notify UTN of the identity and qualifications of such initial biohazard safety officer as well as successor biohazard safety officers upon request (United Tissue Network 2018b).

Again, the type of work to which Alex referred involved not simply filling out a paper request for cadaveric material, but being contractually obligated to have linkages to institutional supports-to be 'official.' The contract language of United Tissue continues, specifying that,

> "APPLICANT shall use, handle and dispose of all human tissue supplied to APPLICANT pursuant to this Agreement in compliance with all applicable local, state, and federal statutes, laws, rules and regulations. APPLICANT is responsible for storing and using all tissue provided by UTN in a safe, secure, and appropriate fashion and have the ability to keep the integrity of the tissue. APPLICANT is responsible for ensuring all tissue usage sites must meet the following requirements: a designated space with lockable doors and restricted access is available. Walls, floors, ceiling, doors, tables and windows constructed of nonporous (or covered to make them nonporous) materials and sealed to minimize air exchange and to be

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[2] See https://unitedtissue.org/Medical_Device_Companies/, for example

[3] I could not download a request form from either of the Whole Body Programs I collected data from, as their forms are not available on their website. In contrast, Science Care, perhaps the largest human tissue contractor in the country, has a phone number where they will take "orders" and answer any questions as well as send the request form and contract after vetting of the potential 'client.' This may have changed more recently in the wake of the Reuters seven-part series investigating the trade in human tissue, which prominently featured Science Care in its third story: https://www.reuters.com/investigates/special-report/usa-bodies-science/#article-industry-leader

> easily disinfected and cleaned. Site must have appropriate signage for alerting persons of any hazards. Sites must have proper independent ventilation with direct exhaust to the exterior with a fan that achieves at least twelve (12) air exchanges per hour to prevent contamination and cross contamination. Sites must have access to working sinks and adequate drainage. APPLICANT is responsible for ensuring all tissue usage sites meet all applicable U.S. Occupational Safety and Health Administration regulations including eye wash stations and handling, lifting, and transporting devices if applicable" (United Tissue Network 2018b).

This language and the set of requirements it sets forth have come about through policies, but also through the interactions between body donation organizations and the users of tissue, mainly continuing medical education training and research labs that request cadaveric material. "Bioskills labs," which is what the industry of CME training calls itself, developed out of the need for accommodations for medical education, specifically post-graduate medical education, such as for the education of surgeons (of many subspecialties), anesthesiologists, emergency medicine physicians and other clinicians. Bioskills training however has more links with surgical specialties than with other specialties in biomedicine.

In some ways, the history of bioskills training and research labs is closely tied to the availability of bodies. Medical education and the need for bodies have progressed in lock step, it is only in recent years (around 20 years) that the bioskills training labs have moved from haphazardly organized convention centers and hotel rooms, to the dedicated sterile, ventilated spaces that resemble the spaces of anatomy labs, bench science labs, and mock ORs.

A common story among the body donation organizations and the early bioskills lab managers was that educational trainings involving "wet lab" (a term for an activity that involves liquids and has the potential to result in splashing) were carried out in hotel rooms where organizers would put down plastic on carpeted ballrooms or conference centers and wheel in tables, stands, and instrument cases. Because of the potential for contamination and the unpleasant feeling that such activities might conjure with the general public who use the same ballroom spaces for weddings and other activities, freestanding bioskills centers sprang up to host medical education trainings. This history is not necessarily documented in the literature, but through interviews, conference meetings, and informal conversations I found that bioskills labs arose out of a necessity for spaces in which to carry out CME activities, and a need to be more formal, more standardized, and more aligned with biomedicine.

It is also important to note that inventing and promoting the term “bioskills” has a similar sanitizing effect as creating distinct spaces dedicated solely for these purposes. By calling surgical, clinical, medical training (including, for example, head courses) “bioskills training”, the industry is removing these activities from ordinary language through the use of a specialized term that makes it sound medical and scientific. Bioskills terminology continues to obfuscate the work that happens with bodies and is carried out by those who work with them. The term also implies that these are distinct skills -- not the same as the skills of the surgeon, not the skills other medical professionals may have, they are “bioskills.” I will explore the term and its association with a professional body later in this chapter.

Beginning of Bioskills

The earliest bioskills lab established (on record) in the United States was the OLC (formerly the Orthopaedic Learning Center). Located in Rosemont, Illinois, next to O’Hare International Airport, about an hour drive outside of Chicago, the facility boasts a “full-service, state-of-the-art venue designed specifically to meet the demanding requirements of high-tech learning environments for medical, corporate and association events” (OLC 2019). Many other bioskills centers have modeled themselves after the OLC, including the major players of the only professional organization for such training and research centers, the Association for Bioskills Laboratory Excellence (ABLE). I will touch on the professional rise of ABLE and associated member organizations later in this chapter, but it is important to note here that the main resource used in the OLC and other bioskills training and research labs, including the ones that I was embedded with, was cadaveric material.

As the number of donors has risen over the past years (Binkley 2016) and as the public has forgotten about past donor scandals (Blakeslee et al. 2004), organizations that both receive bodies and send them out for bioskills training have grown and spread. What is peculiar is that little has changed in the systems and networks that move (transformed) bodies from donor organization to bioskills training sites. Bioskills training sites rely on the network of body donation organizations to supply them with bodies and other forms of tissue. Much of this demand is met with implicit trust that the tissue is sourced in an ethical manner, though this is rarely interrogated. For example, in a study on journal disclosure/acknowledgement on donation and tissue sourcing, Winkelman et al found that,

> information on the source of specimens and the ethical context of their retrieval is not common. Only 40% of articles refer to body donation, only 23% report the institution that provided specimens, and only 17% refer to formalized approval of their study. It appears that most authors either deem ethical questions of limited interest as long as legal and institutional requirements are met, or they take the availability of specimens and the providing institutions for granted (Winkelmann, Heinze, and Hendrix 2016).

It appears that most authors of scientific articles based on work carried out with cadaveric materials either deem ethical questions of limited interest as long as legal and institutional requirements are met, or they take for granted the availability of specimens and the institutions that provision them.

Contemplating how and what standards are used in biomedicine, it is important to delve into where and how standards are developed and implemented. Where do rules come from? What types of standards do bioskills training and research labs develop? How are they interpreted? What do technicians learn when they first start working, and how does this affect their sense of self and place within biomedicine? What users of tissue, and particularly technicians, say about and do in their workplace gives us insights into the type of standards and policies that envelop the work of bioskills training sites.

Policies

To date, the only standard policy that regulates the use of tissue for continuing medical education and research in the United States is the Uniform Anatomical Gift Act (see Intro; Chapter 1). All 50 states have adopted this law, with only a few changes per state. For example, WA state code states that "The tax levied by RCW 82.08.020 shall not apply to sales of human blood, tissue, organs, bodies, or body parts for medical research and quality control testing purposes."[4] Additionally, any discrepancies in the laws across states reflect each state's statutes on how they govern the coroner's offices and medical examiner's offices, or how they define fees and felonies.[5]

For the bioskills training and research labs that make use of cadavers and human tissue, the policies for use lay somewhere in between the lab protocols of bench science spaces and operating room mandates, although neither were quite right for the functions of these spaces. This is fitting given the liminal space that bioskills labs inhabit. Neither operating rooms nor a dedicated research lab, much like the cadavers, these bioskills labs occupy an uneasy in-between position, and operate on policies that have been developed through practice. Bioskills labs are neither strictly situated in a clinical world, nor are they squarely in a scientific research world. They inhabit a minimally-regulated, entrepreneurial, and improvised sliver of biomedicine,

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[4] Wash. Rev. Code § 68.64 (2018)

[5] Wash. Rev. Code § 68.64 (2018), Uniform Anatomical Gift, Ca. Health and Safety Code, Chapter 629 (Cal. Stat. 2007).

although addressing needs that are fundamental to the ongoing training and development of medical professionals.

For bench science labs, institutions require training of staff through Occupational Health and Safety (OHS) as well as Environment Health and Safety (EHS). Offices charged with enforcing adherence to OHS and EHS rules exist within academic medical universities, but also as part of the broader labor safety initiatives across the U.S.[6] Most of the trainings developed in response to OHS and EHS requirements concern how to handle potentially infective agents, called bloodborne pathogens, and how to properly and safely conduct experiments in spaces where such agents are present. Aside from the bloodborne pathogen training, most of the security protocols developed for bench science labs are inappropriate for bioskills training lab programming. Most of the bloodborne trainings did, however, apply to bioskills research labs, but these EHS and OHS trainings did not address how to handle cadavers or human tissue.

For operating rooms, sterility is the most important feature. EHS and OHS each have rules to limit the number of mistakes or hazards affecting both the worker and patient. Cleaning, keeping clutter and debris to a minimum, and having trained professionals who can triage in the space are required of Operating Rooms (ORs). Sterility, however, is paramount in the OR, since patients and workers are subject to exposure to infections. Use of dirty equipment or equipment that is not medical-grade (meaning that it cannot be sterilized in high heat washers) is not allowed in the OR.

EHS and OHS standards on safety and proper equipment handling are only partially applicable to these bioskills training sites. EHS and OHS stipulate safety standards for the use of chemical or biological specimens, namely that proper bodily protections and exposure to such

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[6] These offices are difficult to reach if a company (or a person) is not already affiliated with an established organization. For this reason, many startups may find it prohibitively expensive to do “in-house” research.

specimens not endanger the researcher. They host trainings on the proper use of fume hoods, for example, and perform audits on the maintenance of these fume hoods. But in bioskills training labs, there are no fume hoods. Some bioskills research labs have no need for fume hoods because they do not use chemical agents. The education and research in these spaces make use of cadavers and cadaveric parts, but there are no EHS and OHS trainings or regulations on how to properly handle human tissue. EHS and OHS do specify how to cover oneself when handling sensitive materials, but aside from blood or other fluids that the cadavers emit, there is little need to protect oneself from contaminating materials. Formaldehyde is not used in these bioskills training and research spaces since the majority of the cadavers are “fresh frozen”, meaning they are not embalmed, because the trainings and research conducted using them necessitate in situ and “fresh” tissue, to better simulate the consistency of patient tissue for bioskills trainings and in research projects which are supposed to generate knowledge applicable in the clinic.

Professionalization

The professionalization of this industry was already well under way when I was employed as a bioskills technician, though at the time, the industry itself was only a little over 10 years old. What has changed in the intervening years is the increase in the self-regulation that these organizations have engaged in, such as through conference committees and best practice standards.

The Association for Bioskills Laboratory Excellence or ABLE is an organization established in the last seven years for bioskills training labs, which helps concretize best practice standards by offering long-running and new startup training labs equal opportunity to join the association. It is an independent organization that does not carry regulatory power since it is not affiliated with any state or national agency. Additionally, ABLE is,

> comprised of individuals working within the Bioskills industry, including members of private, corporate, and government-operated facilities, donor centers, as well as medical education and research institutions. Membership in ABLE consists of individuals who serve as owners, operators or employees of Bioskills laboratories, tissue providers, healthcare vendors, healthcare professionals and associations who support the mission of ABLE. ABLE is devoted to advancing public policies in the U.S. and around the world that support innovative medical research, yield progress for patients today and provide hope for the treatments and cures of tomorrow (Association for Bioskills Laboratory Excellence 2019a).

The association invites new and old members to attend its annual meeting where attendees can learn from seasoned professionals in the Bioskills field.

What are "bioskills"? As mentioned above, the term is relatively new, and seems to be used only in this field. ABLE's website has a drop down tab that explains what it encompasses, explaining that bioskills is the "practice of simulating a medical environment for the education of healthcare professionals, for the purposes of teaching, studying, training or researching, the gross structure of the human body, or performing medical or surgical procedures"(Association for Bioskills Laboratory Excellence 2019b). The history of bioskills aligns with developments in medical education, specifically post-graduate medical education or continuing medical education (CME), such as for surgeons, anesthesiologists, and emergency medicine professionals, although use of the term bioskills is mainly associated with surgical sub-specialties. The ABLE website goes on to say that such simulations are practiced on human and animal specimens and with simulators and synthetic models. Interestingly, the ABLE website never returns to the issue of animal specimens, but only sets up a binary between (human) specimens and synthetic models. In fact, most bioskills training and research sites rarely use animal specimens unless they are attempting to cut costs, since the intent is to practice on replicas as life-like and near human as possible.

Who needs bioskills? Again, the ABLE website provides a succinct answer. Healthcare professionals of "nearly every type" use bioskills labs, for hands-on experiences, which are different from plastic (mannequin) or Sawbones (synthetic bone casts) simulators. The "types" of healthcare professionals include: Doctors of Medicine (MD), Doctors of Osteopathy (DO), Doctors of Dental Medicine (DMD), Nurse Practitioners (NP), Registered Nurses (RN), Emergency Medical Technicians (EMTs), Physician Assistants (PAs), etc., According to ABLE, however, the list of professionals who *need* bioskills is different from the list of those who *use* it.

In their list of who *uses* bioskills, the first listed type professional is not a surgeon, as has been the overall thrust of their messaging, but instead “Medical Device Companies” (See Figure 1). This points to what one technician I spoke with referred to in her description of the training around the technicians’ jobs, when she said that more than knowledge what was valued was “a customer oriented attitude.” Bioskills training and research labs are needed by clinicians, but they are used by industry professionals. Industry demands a more business friendly, *customer service* oriented treatment, rather than the academic attitudes that most medical education spaces portray. As much as bioskills is about education for professionals in training, the bioskills *industry* is built on money from private medical device companies, whether in the form of grants, donations, or outright payment for facility use (all of which come into play).

In my time working as a technician, I briefly handled some of the invoices for use of the lab; most often these were addressed to the medical device representatives who were the heaviest users of the lab spaces (and who generated a majority of the revenue for the lab). These device companies would pay the lab either in the form of a donation to the school, or in the form of a payment to the medical school for use of the space. The way that this was rationalized was by explaining that the revenue that came from private medical device use of the lab helped pay for staffing and tools that students would come in and use. This was similar in all labs that I observed: private use would bring in revenue to pay for staffing of non-industry-sponsored academic use.

Returning to the use of cadavers, ABLE on its website explains that specimens (now only talking about human specimens) are “real tissue” which are different from “a model” or simulator. “Model” here can mean a plastic model or model organism, but the gold standard for practice, and for learning, should be actual (human) cadavers.

Finally, the ABLE website explains why bioskills are important. Here ABLE shifts back to the original *needs* theme, since bioskills are needed by health professionals and they reduce the rate of complications and errors for new surgeons -- and indeed, the public being treated by these professionals do expect and appreciate that they have had practice performing surgeries, before treating a live patient. Medical device manufacturer representatives, meanwhile, expect clinicians (mainly surgeons) to gain practice using their devices, and hope that they will purchase these devices (or have their hospitals purchase them) in the future.

ABLE was founded by a number of bioskills training lab managers, one of whom is the manager of the OLC. As one of the earliest bioskills training labs, it has set the standard for what bioskills labs can be. The OLC was originally intended for orthopaedic trainings,[7] but has expanded to include other healthcare professions and critically to industry representatives. The history of training for medical education is impossible to recount without also pointing out the integral part that industry and their devices play in physician education -- devices that are relied upon (and sometimes collaboratively created) by the physicians who use them. For this reason, (among others) industry has been a key player in the creation and sustainability of bioskills training and research labs.

Critically, the mission of these labs is to create and develop knowledgeable clinicians. For one bioskills lab, this means developing future “thought leaders.” This is key since the

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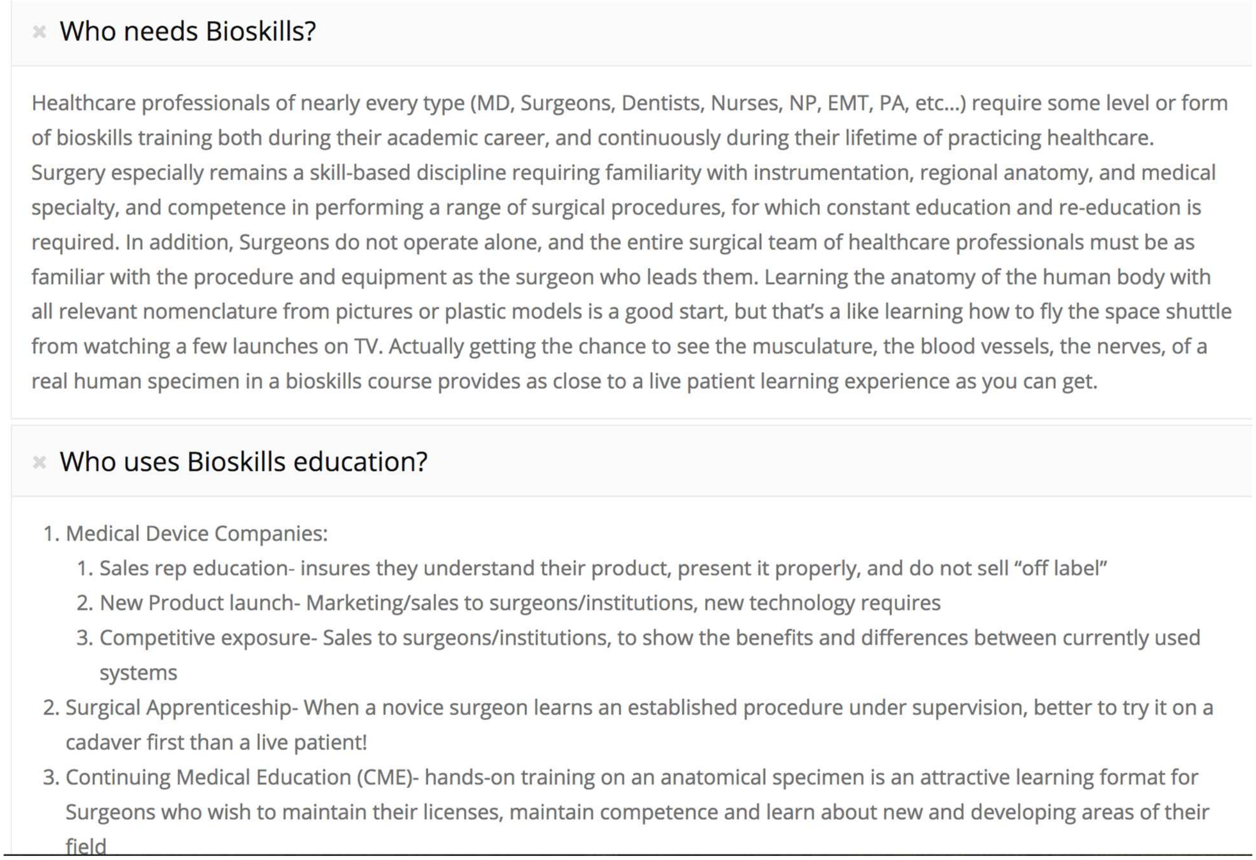
[7] The OLC was formerly known as the Orthopaedic Learning Center, but is now known as the OLC in its public materials.

thought leaders these bioskills training labs are developing are not the people who labor in them every day, but the visitors who Jasmin referred to as “the clients.”



× Who needs Bioskills?

Healthcare professionals of nearly every type (MD, Surgeons, Dentists, Nurses, NP, EMT, PA, etc...) require some level or form of bioskills training both during their academic career, and continuously during their lifetime of practicing healthcare. Surgery especially remains a skill-based discipline requiring familiarity with instrumentation, regional anatomy, and medical specialty, and competence in performing a range of surgical procedures, for which constant education and re-education is required. In addition, Surgeons do not operate alone, and the entire surgical team of healthcare professionals must be as familiar with the procedure and equipment as the surgeon who leads them. Learning the anatomy of the human body with all relevant nomenclature from pictures or plastic models is a good start, but that’s a like learning how to fly the space shuttle from watching a few launches on TV. Actually getting the chance to see the musculature, the blood vessels, the nerves, of a real human specimen in a bioskills course provides as close to a live patient learning experience as you can get.

× Who uses Bioskills education?

1. Medical Device Companies:
   1. Sales rep education- insures they understand their product, present it properly, and do not sell “off label”
   2. New Product launch- Marketing/sales to surgeons/institutions, new technology requires
   3. Competitive exposure- Sales to surgeons/institutions, to show the benefits and differences between currently used systems
2. Surgical Apprenticeship- When a novice surgeon learns an established procedure under supervision, better to try it on a cadaver first than a live patient!
3. Continuing Medical Education (CME)- hands-on training on an anatomical specimen is an attractive learning format for Surgeons who wish to maintain their licenses, maintain competence and learn about new and developing areas of their field

Figure 2.1: Screenshot of ABLE “About Us” webpage

But what is also echoed in bioskills training sites is the form of regulation governing body donation organizations – namely, a nearly-total *absence* of such regulation. ABLE, as the only organization that represents the interests of bioskills training labs, is also the only entity that has offered anything in the form of standards--and these have been pay-walled for members only.

This situation calls attention to an interesting puzzle in the way bioskills is practiced. There is a tension here between how the industry of bioskills is publicly framed, and how it is internally managed. While continuing medical education is a necessity, the branding of particular forms of continuing education as "bioskills" represents a strategic public relations opportunity. The term "bioskills" cannot be found defined in any dictionary, because it has been (relatively recently) coined and promoted by ABLE. The Association solidified its presence sometime around 2010 at the time of its first "Bioskills Symposium."[8] The organizers of the meeting were all representatives of stand-alone, nonacademic training labs, although they may have included a mixture of non-profit and for-profit labs.

So while bioskills labs say that they have standards, and that they are mission driven to create more knowledgeable clinicians and better healthcare equipment, their gatekeeping strategies prevent the public from actually knowing what these standards are. What then are these "standards" that we are told exist, but which are not explained? We are left to address this question by going into the labs and talking with the workers themselves.

The Labs

The Northern California CME training lab was on the third floor of the building in which it was housed. Many visitors and the lab administrators remarked on this fact since the majority of surgeons and clinicians were used to cadaver labs being located in basements. Going above ground and seeing natural light was a delight that not many training sites offered. This location was noteworthy, particularly because of the history out of which the training and research labs emerged: this lab was still hidden from public view, but it was open to natural light, and offered

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[8] This is based on first-hand knowledge as a former technician then surgical coordinator. I attended the inaugural bioskills symposium in 2010 before members decided to associate. In 2018 it held its ninth annual Bioskills Symposium meeting. In 2010, the meeting was organized by many of the now leaders of the Association. ABLE also claims to be a 501c3 but four searches on distinct charitable organization search sites [*IRS Tax Exempt Organizations Search database (https://apps.irs.gov/app/eos/), Guidestar (http://guidestar.org/), the National Center for Charitable Statistics (https://nccs.urban.org/sites/all/nccs-archive/html/PubApps/search.php) and the Economic Research Institute (https://www.erieri.com/form990finder)]* all returned zero matches. Additionally, there is no employer identification number (EIN) listed on the site or date of its founding.

views to the outside. Operating on bodies had become a necessary, but pleasant experience -- at least, these labs wanted it to be so.

Clients (and staff alike) would walk down an airy, windowed hallway and arrive at a front desk with letters spelling out the name of the department lining the back wall. From there, people would walk left down a hallway towards the conference room or locker rooms. The conference room, containing movable chairs and tables, organized in a classroom-like setup, had a whiteboard, movable screen and projector, and a series of tastefully placed plants and glass doors. It also had windows facing east which brought in good morning light, and enjoyed natural light the whole day. Staff did not sit in this room; they had an open office room next to the conference room, with work stations lined with computers for use by the rotating part-time staff and by the full-time staff and visitors to the space. Across from the conference room and lab staff office were three offices that were used by non-lab staff, the clinical research team. These clinical researchers locked their offices when they were gone because of the sensitive information they kept there -- and to keep any lab visitors out. (When these offices weren't occupied by clinical researchers, industry reps and people taking courses would go there to take phone calls, return beeper messages, or just to eat). The furthest room to the back was a small kitchenette where staff had initially eaten lunch, but which they had repurposed as a space to store dishware, snacks, and coffee for the courses.

The training staff called any use of the training lab a "course." Courses ranged from one person to 60 in attendance. The single-person courses were usually research projects and dissection projects carried out by surgeons who were investigating a surgical placement or approach for their practice, or recording something for a conference presentation. These courses made use of cadaveric material that in some cases would have been specially ordered for that user, but more often was leftover material from a previous course. The 60-person courses were instructional, often industry-sponsored, day-long events attended by clinicians, residents, and many medical device representatives.

Staffing needs for each type of course also differed, depending on the number of stations in use. The number of stations correlated to the amount of cadaveric material in use -- though sometimes there would be more material than stations because of the needs of the course (if, for example, the cadavers needed to be switched out in the middle of the day for a different surgery or training).

The training lab had six stations. This meant it had six surgical tables, which resembled person-long chopping boards on casters embedded on a steel base frame. The surgical tables (i.e., the table top, not the steel base) were permeable to X-rays. Additionally, there were an instrument table (stainless steel on casters) and a "Mayo stand"[9] (a c-shaped table also on casters). The station correlated with an operating light above. The room was set up with four stations lining the length of the lab but parallel to the wall (though this arrangement could be adjusted, as the light arm was movable) and two stations perpendicular to these.

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[9] Name comes from inventor(s), not a mayonnaise reference. See Meals and Wang 2010.

Figures 2.2 & 2.3: Photos of Northern California CME training lab from each end of the lab at different times. From Youtube.com

At one end of the lab protruded a large hand-washing station, similar to a large trough, with two faucets and a knee-height button that acted as the sink lever. To the right was one of the two egresses. To the right of that door stood a small desk area with computer and lab phone; lab assistants sat there to enter notation of deliveries or outgoing shipments of cadaveric material into the cadaver log. Further to the right was the door of the refrigerator door -- a walk-in, built-in, 4-degree Celsius model about 6 feet wide and 6’5’’ deep. The fridge could fit two three-run racks, with enough space to allow one to two lab techs to walk in and grab cadaveric material, or push one of the racks out at a time. Next to the fridge was the other exit/entry door. Embedded into the third wall was the built in high powered instrument washer, almost like an industrial dishwasher. Just to the right of this was what the floorplan identified as “the cadaver sink,” a shallow sink used for washing instruments that had been used on cadaveric material. The fourth wall was all south-facing windows, which were painted shut but let in sunlight.

The training lab was also equipped with surgical instrumentation for each station, deluxe power sets (i.e., clinical grade power tools), and four portable x-ray machines.

For all of its clinical sleekness, the lab was for the most part sparse. Like operating rooms, perhaps, it held only the necessary materials (and for ease of cleaning and sterilizing).

The Audio Visual system was state-of-the-art, with embedded cameras in the main teaching station, but the surgical tables, while expensive (an employee told me that they were custom made) were industrial-looking and sparse. For all its cleanliness, or effort to achieve cleanliness, much of the look and feel of the training lab (like its counterparts across the country and in the Northwest) was expressly basic. Back when I was an employee of the Northern California lab, the head surgeon of the department had told me and other staff that he wanted the training lab cleared, with the exception of one X-ray machine (what we called the C-arm) at the teaching station. This was the basic set-up and a staging for a course, so that in case anyone came through on a tour they could see the lab ready, and visualize its possibilities for their own use. There were no surgical instruments left out, no other machines or prep materials, and of course, no bodies. This set up an interesting juxtaposition between the lab and the rooms on the outside.

Advertised as a “full service” event space, the CME training lab allowed visitors, users, and trainees a space to conduct their trainings and device testing while being able to rest in an equally “state of the art” conference room, with an Audio Visual system connected to the lab. From there, users who did not want to be in the training lab could watch the operations and testing occurring in the next room. The conference space was clean, sleek, and equally minimal, but with a decidedly more luxe feel than the lab had. It also lay to the side of a long hallway with heavy glass doors and serving tables and surfaces where, if attendees chose to, they could have their pick of a catered meal.

The juxtaposition between the clinical and the didactic spaces is curious. Often, lab spaces with their many technologies and apparatuses, gave off the impression of being high-cost. The gadgets and machines whirring and lighting up reflect the costly science that takes place in them. In the surgical labs, however, the inverse occurred. While the lab space did contain expensive technology, this was usually not powered on and whirring, but rather stored away in a storage room or disassembled in cases. The lab looked more attractive when it was cleared of the expensive imaging machinery and instrumentation, and just lay bare, with its chopping board tables and steel tray stands. More luxe were the conference rooms, with their lights, flat panel televisions, and comfortable chairs (the latter conspicuously but understandably absent from the lab, since no one could or ever would sit down during a training or the testing of a device).

Setting-up for a Course

A course was any event that took place in the CME training labs. The majority of the events were trainings, often involving one senior attending physician or surgeon working with a younger physician, usually a resident, to demonstrate a surgical approach or how to use a particular medical device. The courses were split between small one-on-one trainings and large trainings involving one trainer and 10-50 trainees. A majority of these larger trainings were sponsored by industry professionals. The CME training and research labs relied on industry money to pay a majority of their operating costs, since the cost to host a training was substantially more for industry-sponsored versus non-industry-sponsored academic trainings. Fees charged to industry groups ranged from 20-30% higher, often because of the indirect costs and catering costs that industry-sponsored courses would accrue.[10] In the Northern California CME training lab, some small courses were also sponsored by outside entities. “Industry” encompassed any company or entity not affiliated with the university, including multi-national conglomerates like Depuy or Stryker as well as small biotech start-ups. All of these companies

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[10] This is based on personal observations of ledgers at the Northern California CME training lab.

contracted with either the CME training labs or the CME research labs, sometimes through device testing contracts and other times through grants.

When techs would set up for a course, they would first receive the requirements from the "client" -- which could either be a surgeon and a research collaborator, a private company researcher, a medical school department, or, as was most often the case, an industry representative.

Typical courses required little cadaveric material, often torsos, or pelvis to toe-tips or individual appendages. Rarely were whole bodies used or requested, most likely because of the cost of a full cadaver (which was much higher than that of an arm or a torso) or because more tissue was not necessary for the project or operation. I did not receive a cost list for any lab with which I did my ethnographic work, but one manager did mention in an interview that the cadaveric materials were priced at 26% more if they were for an industry course. The costs for cadaveric material were often kept hidden from me, partly because I was not a staff member and partly because I worked most closely with technicians, and most technicians were ignorant of these price lists. It was the Manager's job to fill out the request form for tissue: the "Anatomical Materials Request Application" or AMRA. Some technicians received and signed for the cadaveric material, but they did not have to negotiate the cost of the cadaveric material nor send invoices to clients. Technicians *had* access to the cadaveric material cost list, but because it was not part of their everyday work did not know of the cost.

Once the cadaveric materials were delivered, technicians were responsible for signing the chain of custody paperwork. Then, technicians were responsible for the prep of the material. This meant cleaning the cadaveric material of any excess liquid or blood, which was present on the majority of the material that came through the lab. Because cadaveric materials were most often not embalmed, but rather "fresh frozen," the material was kept in freezers outside the lab. Once the material was needed in the lab, it was thawed for a day or two in the lab refrigerator, depending on its size, and excess liquid (frozen water and bodily liquids that mixed with it) needed to be cleaned off. Some techs called this preparation work making the material "presentable for the client."

Operating room policies, specifically the need for sterility, are technically not applicable in the CME training and research sites. Cleanliness is important, since techs and users of these spaces need to trust that the surfaces they are touching are not contaminated, but sterility is unnecessary since surgery is not being practiced on living patients, or what some called "real patients." The cadavers were under no threat from contamination, and that meant that while wiping down surfaces, machines, and floors was important (to erase stains or spills), the use of commercial, nonmedical grade equipment and the reuse of non-sterilized instruments was completely fine. The only threat was to the living techs and other workers using the space and the cadavers. Similarly, operating room policies and procedures that stipulate how and where to keep a sterile field, how to double-check that the right body part or area is being operated on (called "Time Out"), and how the inter-professional chain of command is handled are inapplicable in the CME training and research spaces. Techs (and at times managers and PhD-level primary investigators), did all the operating-room jobs — they served as instrument technicians, nursing staff, radiology technicians, and cleaners. Technicians learned how to do these jobs not necessarily through formal training or from explicit policies set forth by a federal agency, a state code, or even an organizational policy, but rather from a patchwork system of standards cobbled together from research lab protocols and operating room policies, learned mainly through "on the job training."

This “on the job training” creates a form of knowledge that can best be described as habitus. Sociologist Pierre Bourdieu coined and described the concept of habitus to describe how ideas and actions of the past turn into natural, currently occurring thought or action through embodied practice. As he put it,

> it is the habitus, history turned into nature, i.e. denied as such, which accomplishes practically the relating of these two systems of relations, in and through the production of practice. The ‘unconscious’ is never anything other than the forgetting of history which history itself produces by incorporating the objective structures it produces in the second natures of the habitus (Bourdieu 1977, 78-9).

Put another way, habitus is the making-unconscious what has been learned from past experience and action. Habitus is the imbuing into the subconscious the structures of meaning present in a particular social world, making them natural to a person’s experience. The way people learn things that become part of their habitus, is by watching, by doing, and by learning at the level of the body all the “training.” In CME spaces, technicians learn habits of practice in just this way, in contrast to the image of professionalization, and abstract body of knowledge or bioskills that they claim. I’ll explore this further later.

Habitus as a concept has two parts: first, it explains how individuals come to be themselves and second, it explains how individuals engage in social practices (Webb, Schirato, and Danaher 2002). Habitus involves a number of processes. Knowledge that we possess is always shaped by our habitus rather than passively acquired. The concept of habitus also describes the process by which people adopt certain attitudes, values, or beliefs because of the cultural milieu in which they find themselves. Lastly, habitus is created in moments of action, or “moments of practice” (Webb, Schirato, and Danaher 2002, 38). It is activated when an opinion or a value system that has already been absorbed into oneself meets a problem or context. And lastly, habitus operates on an almost subconscious level. Webb, Schirato, and Denaher explain that “habitus is, in a sense, arbitrary; there is nothing natural or essential about the values we hold, the desires we pursue, or the practices in which we engage" (Webb, Schirato, and Danaher 2002, 38–39). This is not to say that individuals are without agency, but rather that habitus can only act effectively if individuals feel that the options from which they choose are common sense or natural. Webb, Schirato, and Danaher summarize the matter thus: "systems, rules, laws, structures and categories of meaning and perception can only function effectively as habitus if we do not think about the specific sociocultural conditions or contexts of their production and existence" (Webb, Schirato, and Danaher 2002, 39).

The concept of habitus allows us to examine the process people undergo when learning "on the job." Learning things on the job involves absorbing many ideas, values, and symbolic structures, without ever making explicit what these are. In CME labs, workers learn by being shown how to do their job "this way," in the process absorbing all the history and logic that go along with it as well. This form of implicit and embodied learning stands in stark contrast to the conception of knowledge that is presumed by the concept of professionalism. In this CME realm, socialization of learning happens in a manner different than professionalization, and different from how ABLE is trying to represent the field and make claims on behalf of it.

The reason this is important is that habitus creates "virtue out of necessity." Put in a different way, "the most improbable practices are therefore excluded, as unthinkable, by a kind of immediate submission to order that inclines agents to make a virtue of necessity" (Bourdieu 1990, 54). What this "making a virtue of necessity" means in CME spaces, is that keeping things in *order* takes on symbolic and moral as well as practical importance. How "order" is achieved across the many relations involved is through the only standard that can be read across organizations, most commonly known as "paperwork."

Standard Paperwork, Standard Order

Cleanliness, order, ritual, are all wrapped up into the concept of regulation in the world of continuing medical education. Body donation organizations and the CME training labs and research facilities that request tissue from them share agreements on how bodies must be received, what recipients can and must do after they receive them, and how they must make sure they know where the bodies went next. In the world of continuing medical education, this is known as the chain of custody.

The chain of custody as implemented by body donation organizations listed the number of the cadaveric material delivered and their anatomical description. For example, if a left leg was requested, the chain of custody would list the originating organization, the recipient lab or facility, and the number of the cadaveric material and description, e.g. 16-026 L Femur-Toe tip (for a full leg). While the two medical school sites where I did my research used different forms and formatting for their information, these elements were standard across all organization-lab relations. In essence, the chain of custody is as much a document as it is a system. It is a way to put on paper where cadaveric material is and a way to keep relations between two entities intact. It is also a way to regulate the spaces since the chain of custody makes evident where cadaveric material is, and who ultimately is responsible for keeping track of it.

"Regulation," synonymous with security, formality, and (bureaucratic) process, was invoked by managers and technicians to provide a sense of order and validation for work that, outside of CME spaces, would be considered gruesome and untoward. As Alex stated earlier, acquiring cadaveric material or cadavers should take "work," and that "work" has a moral and ethical charge. Echoing Tim's desire to disassociate his work from its historical linkages to butchery (See Chapter 2), and the stigma of the horror movie or the illegitimacy of the "resurrectionists" (Shultz 1992; Guttmacher 1955; Moores Ball 1989; Roach 2003; MacDonald 2005; Garment et al. 2007; Ghosh 2015), Darius, who worked as a manager in a hybrid anatomy and CME lab, very emphatically stated that "We do *not* body snatch!" Creating more distance between the grim history of cadaver usage and the work that he carried out, he went on to say,

> We do not murder people in the streets to find specimens. It is a donation. People fill out the paperwork before they pass. I had a woman try to ask me, 'Well how do they fill out that paperwork?'…and I was like…'Usually with a pen and paper.' And she was like…'Well, but after they die?' And I'm like…'No, before they die…usually a signature is a little hard to come by from dead people.'

Rachel, one of the managers of the Northern California training lab, explained that for the majority of her work, "proper bookkeeping with the cadavers is number one, and it's like making sure that we all know where the cadavers are, how many we have in our possession, how many we've given back, what's been used for them, who has used them, how they've used them…that is actually the bulk of that." Another senior technician, Jasmin, noted that,

> mainly I'm just in charge of contacting the clients before the day of logistics, going over with them in more detail what they want, how they want everything set up, confirming number of stations, number of people, how many specimens, what type of specimen…anything that you can think of the day of that they would want to happen, or how they want their event to go. And then I also communicate with the Whole Body Program a lot about specimen requests and then deliveries, as well as specimen disposals and keeping our cadaver log up to date.

The way in which these technicians carry out their work has a direct line to the mandates of the body donation organizations they work with. Specifically, asking for order, paperwork, and tracking is a way that body donation organizations safeguard their own reputations and their existence. CME training and research labs too have to safeguard their access to the cadaveric material and cadavers on which their work relies. The paperwork served as a way to vet the character of the CME training and research labs—were these reputable people? Responsible? Were they acting in a moral way? The importance of the paperwork is understood differently by individual technicians, but all agree that it was important. The paperwork carries a moral charge, not just as a practical means of accessing the work they need to do, but as something that makes the technicians feel that they are doing things properly, following standards, being regulated. This involves nothing close to formal regulation, but a self-regulating action aligned with the standards that they as a CME training and research lab are creating for themselves. Caring about paperwork becomes part of the technician’s habitus -- making a virtue out of necessity. A moral weight gets assigned to a process that has few repercussions if not followed -- because the tracking of cadaveric material is not required by law, and has no legal consequences, only social ones.

If CME training and research labs did not track the cadaveric material as the body donation organizations asked, they would not automatically lose access to tissue. While I was employed at the Northern California lab, the sister research lab would continually fragment and dissect the cadavers that they had on hand, in order to carry out research projects. They would also keep cadaveric material for long periods (several months to a year). Because that lab also had a high turn-over among technicians (mainly undergraduate and recent college graduate research assistants) the tracking system was not always adhered to. While they never lost any tissue, there were periods when cadaveric materials were mislabeled or stored improperly. The lab was reprimanded for this by the Northern California Program, but never lost access to cadaveric material. So the “regulation” of tracking and chain of custody, while an important aspect of cadaveric material use, reflected a “need” that was somewhat arbitrary. Really, the necessity to track tissue became a virtue as the use of cadaveric material grew. In order to normalize the use of cadavers in CME trainings and research, new virtues appeared, such that of tracking, that of protecting anonymity, and that of treating the cadavers properly. Generally, all of these paperwork-related virtues are linked to the larger virtue of distancing the work and those who perform it from a more morbid history, that of grave robbing. When it came to the treatment of cadavers, this “virtue of necessity” translated to learning how to handle tissue based on the tutelage of whomever taught technicians or managers how to do their work. This was how most technicians were trained at the onset and it was how they passed on what they had learned to others as they rose in the ranks to senior technician or manager.

Training with Bodies

Training in the Pacific Northwest

Tomás was a technician in the Pacific Northwest lab, and when I interviewed him he had been a veteran of the training space for over four years, leaving intermittently for travel, but always returning and eventually moving up in the ranks to become the manager of the lab. Before he became manager, however, he had a hand in transitioning the training lab from small room practice space to fully-outfitted surgical suite. He was a white, brown haired male of athletic build. He recalled that that happened “at the end of 2007, [we migrated] from a small closeted area in the wing [of the hospital] to the first floor of the [new surgery center], where it's currently located. So staff has grown, space has grown, we have a lot more stuff.” He was also responsible for seeing the training lab grow, not simply in square footage but in staffing capacity. When he started, Tomás was one of three technicians, but by the time I conducted my ethnography at the Pacific Northwest lab he was supervising five full-time technicians, and a videographer.

Tomás, as Manager, explained that the way he thought about his supervisees originated from his conversations with techs who had delivered and run their own tissue programs. At least one of these techs had previous experience in the mortuary business. Tomás explained that the policies governing work in the lab, as he had learned them, were passed down from previous technicians, or in some cases had been developed through trial-and-error experiences for which he had been present. This points to the ways in which policies and best practices are passed down to the technicians who day in and out work on bodies. Tomás, when previously working as a technician, had learned the ways of the lab through direct observation and informal instruction. As manager now, he carried out the protocols of the lab as they had been passed down to him from previous employees, and if ever there were any direct mandates to change he explored those. As it happened, four of the five managers that I interviewed had had a similar experience. These managers had learned norms and practices of how to treat cadavers when they themselves were technicians, and carried that training into their supervisory position and implemented that in training their new charges.

Tomás described one instance when a cadaver had been kept for too long, and the aftermath of that experience,

> We had a specimen get used, and this kind of changed how we handle some of the stuff that comes through here…I forget if it was a full body, but it was definitely a torso, and it had legs…it may have been a full body. It was for this course, and we don't have space in our freezer to store them. There were people who kept trying to use it, and then it kind of got postponed, and so it kind of stayed around for a while…[in the fridge]. Yeah, but it was pulled for use on a couple of different occasions. So I think it was here six months or so…And it might not have been that long, but it was more than two months...I got a call when it did eventually go back…and this was when I was the manager here, so I felt bad about it. But I got a call from Richard* when it went back, and Richard was just like…'well we just got a specimen back today and this just isn't going to cut it.' [Richard explained that,] around some of the incision sites, there was like mold and stuff that was growing. Yeah, which was a little surprising because I had never seen that before, and I had previously checked with the Medical Examiner about how long stuff can stay in that 2-degree fridge, and if it's not used or disturbed and just sits there at the 2 degrees, it sounds like it keeps for a very long time. [The Medical Examiner] was saying, 'oh, yeah, it may go months and it would be okay.' But all that time above 2 degrees, and the couple times it was used, so it had openings and stuff probably deteriorated it. But Richard was just like...'this isn't okay.'"

Tomás' experience showcases that trial and error is a common occurrence in the work of a tech, or even of a Manager, in a CME training and research lab. What Tomás did not know, or did not anticipate, was the toll that use would have on the cadaveric material that he and his co-techs were using for the courses and research they administered. Having been assured or resting on the assumption that their care for the tissue (i.e., keeping it in a fridge) would stop the "natural" deterioration of the tissue, Tomás had a rude awakening in learning that in fact it would not. The "training" he had received from a medical professional, which really took the form of just informal conversation, was inexact. The treatment Tomás and his technicians were giving the cadavers was called out by Richard as being "not okay," i.e. too close to how cadavers had been treated in the time of grave robbing. It was careless; dehumanizing. Tomás needed to be corrected, and training around treatment of cadavers reassessed.

Training changed because of that phone call, and in the months that followed Tomás implemented new measures that reduced the use of the cadavers. He made sure that techs sutured openings so as to make mold at incisions (in damp, wet areas) less likely. A much more vivid retelling of the training that technicians implemented was offered by Gemma, who worked in the lab located in Northern California.

Training in Northern California

Gemma was the lead tech at the Northern California CME training lab. She was a friendly tech of East Asian heritage. She had gotten the job at the Northern California lab through a contact from her post-bachelor's program. While enrolled in that program, with the goal of entering nursing school, she had run an anatomy lab at a nearby state university. Gemma was well-trained in anatomy, and she had gotten the technician job because of it. At the time of our interview, Gemma had finished her nursing program and had been working as a nurse in nearby hospitals, but kept her technician job because of the bonds that she had formed with techs and the seniority she had acquired at the space. She was also slowly building up hours in her nursing job, so she needed full-time employment between the two positions. Gemma was a valuable asset to the lab because she had the most institutional knowledge of anyone on staff.

As the most senior member of the lab team, she helped set many of the protocols. At the time that we spoke she had been working at the lab for eight years. She, more than most, knew what was necessary for prepping cadaveric material.

> When we see [the specimens] they're wrapped up in a white bag and taped together, and then they're also wrapped with a clear, kind of like a plastic sheeting and tied at both ends. Once we get them we cut them open and then reflect (*meaning to pull back*) all the plastic coverings off and if there's blood around it in the areas of cut, we wipe them down, clean it up, make it presentable, make sure it doesn't have any scar marks that could say that this person had a certain kind of surgery…like say if we need an intact knee, we check to see if the knees have any scars to make sure it doesn't have any history of knee surgeries, and if we do see a scar we would run an x-ray on it to see if there is an implant, and if there is an implant and the client needs a regular knee, a knee with no implants or knee surgeries, we would call [the] Whole Body [Program] to see if they can get us another specimen. But once that's all cleared we clean them up, wipe them down.

Gemma described this process in minute detail (as compared to all other fourteen technicians I interviewed); as the longest-serving technician in the Northern California lab, she had trained almost every technician who had crossed that lab's threshold, including me.

Most techs, and one research manager in particular, considered the amount of training necessary to be correlated with their tenure at the lab. Ashley, a tall, brown-haired white PhD researcher who managed graduate students in an orthopedic research lab, explained to me how he came to learn how to handle cadavers.

> Initially at the outset either the involvement and the responsibilities were handed to you in steadily increasing chunks. So at the very beginning, very little responsibility, very little involvement. I didn't order the tissue, it showed up on a certain day and the person who…the lab manager whose name is Mohamed, had ordered the tissue. It was ready for me, and he kind of showed me the ropes, so to speak. "So, this is your first spine. Let's talk about what we're going to be doing, and I'm going to show you how to do it. I think we had two spines…I'm going to show you how to do it on one of them, and you're going to do it on the other." So like most, I gather that medical education and certainly in anatomy it's probably the same, and in surgical practice it's the same way, where you "See one, do one, teach one," right? So very much like that.

The phrase "see one, do one, teach one" was an allusion to Ashley's contact with surgeons, where the motto was exactly that. The old model of the continuing medical education (CME) curriculum was predicated on the idea that if you witnessed a surgical procedure and then did it, you could replicate it with another surgeon, or in Ashley's case with a budding tech. Ashley trained all his graduate students on the techniques for handling cadaveric material. The only other training was that mandated by the institution.

Another senior technician at the Northern California lab named Jasmin, who was not quite as senior as Gemma, explained that,

> besides just the typical biological safety courses that you take…(the on-line ones?)…yeah, past that there's not really very much training to prepare for it. You just kind of come in the day of and hopefully it might be a simple procedure so you're not really thrown in immediately to an entire spine being exposed, or I think some of the other courses that are kind of a little difficult the first time are craniomaxillofacial courses, [the head courses].

Jasmin, a no-nonsense but cheery redhead, explained that the training for technicians was not as formal as one might expect for cadaver-related work. In fact, the training was more akin to walking in and following someone's direction. She elaborated,

> it's a difficult job where there's not a lot of preparing beforehand. I mean, it's literally just being able to know how a lab runs and what the typical kind of course looks like when you come in and you set up, and then you are support during the lab, and then the cleanup afterwards. So really the best way to kind of train people is have them to just come in and experience it.

Jasmin's fellow technician, Mario, explained,

> "Okay, so the training…there's no procedure for the training…just spending time here, working a course and listening, really like that was how I learned everything. There was never like…'Oh, in two months you should know this…in four months you should know this.' Everybody, we've all learned something at a different pace, and…there's like no set manual…training has just been like within the first month or so it was just hang out in the lab, watch things, learn the instruments, learn where everything is, and then as time went on, it was probably like six months where then I was able to put my hands on a C-arm (portable x-ray machine)"

Jasmin and Mario reiterated the "on the job" training aspect of technicians' work. More than learning through on-line modules or a manual, they were trained through tactile and experiential learning. More than textbook knowledge, technicians' work rested on the embodied knowledge of standing next to someone, following their motions, repeating what they saw, and then teaching it to another. Similar to what Rachel Prentice explains in her analysis of surgical resident training, judgment is "less the application of abstract rules to real-world situations than an affectively informed product of accumulated practice and observation in a structuring environment" (Prentice 2013, 29). The "see one, do one, teach one" maxim that was a part of the surgeons' training, applied also to the technicians, except that instead of clinical application, their skills were limited to assisting in a procedure rather than enacting it in clinic.

When I asked technicians what was one of the most important qualities that technicians should have, I got a number of responses, but the one that I was most curious about was "customer service."

Training for Customers

Part of what being a technician entailed was caring for bodies, as Gemma explained, but it also meant attending to whomever was in the lab. A technician acted as caretaker to the cadavers but took care of the visitors of the space as well, be they graduated attending physicians, residents, startup engineers, or device representatives. That work meant prepping the lab and cadaveric material, attending to the users of the space, grabbing tools, taking x-rays, and even helping the visitors gown up for entry. This meant that if there was X-ray being used, technicians had to have lead aprons cleaned and ready and be available to help visitors secure the velcro fastenings on the aprons. More often, technicians had to bring protective gowns and other personal protective equipment (PPE) for the visitors and help them tie up gowns, put on booties, tie on hair caps, and so forth -- just like scrub technicians in the OR. Technicians also had to help coordinate food for long or meal-hour trainings. This meant that technicians had work to do both inside and outside the lab -- as lab caretakers, but also as caterers and custodial workers.

When I sat with Mara, a technician at the Pacific Northwest lab, she stated that her work required her to push herself since she was naturally a quiet person. And in my observation, she generally was quiet. In my time at the Pacific Northwest lab, Mara spoke to me only a handful of times. Mara was a blonde, petite woman in the lab. There was another female technician who worked with her, but unlike her female and male counterparts, Mara while always cordial, was rarely chatty. Hearing Mara say that the characteristic technicians should have was "customer service" surprised me because she seemed so reserved. She elaborated on why it was important that a technician be customer service oriented; they had to be,

> helpful, just so people know how to present themselves and how to be kind to customers, even though these aren't your typical types of customers, we still refer to them as that because they come by and they use the [lab]…And of course, medical knowledge is helpful as well…I think at least you had to have an interest in it. I don't think we had to have like a certain number of years of medical knowledge or coursework…we [didn't have] to be premed, or have a certain degree in anything. It was more just you needed to be interested in this.

Jasmin in the Northern California lab echoed Mara's sentiments and fleshed out her reasoning with a bit more detail,

> I feel like the obvious answer would be people who have experience or knowledge of biology or the human body, but it actually doesn't…it's not exactly what I see…we are academic, but also industry or customer service job too. So a lot of what we do is having to make sure that people who come into the lab are happy and it's what they want, and they can be very particular sometimes…knowledge of anatomy and biology helps a tech, become a senior tech because then you know what you're looking for when you're shooting [X-ray], but I think it's more important to be able to be calm and collected…Because we deal with some difficult people.

Jasmin pointed out an interesting aspect of her and other technicians' work: while expertise might help someone to rise in the ranks, content knowledge was not actually as important as the ability to cater to those in power, to the clients that paid for their services and therefore created their employment. This is not unique to technicians' work, as it is indicative of most professions.

Using the medical sociologist Eliot Freidson's definition, a profession is not "a body a knowledge or service ideals—emphasized in the prevailing literature, but, rather, control over the technical content of work…Occupations gain autonomy through political persuasion and the patronage of social elites. Thus the power of professions arises from social and historical processes" (Halpern and Anspach 1993, 279). This kind of effort to claim autonomy was happening with ABLE, but at higher organizational level, and technicians themselves were not privy to the conversations nor involved in creating the standards that were meant to keep certain people out and bring others in to the profession. Technicians played the part of satisfying the social elites—medical professionals.

Here lies a tension. It is the tension between technicians' embodied learning through watching people on the job and developing a particular habitus, and the very different model of learning implicit in the way professions are recognized. Professions claim to have a specialized cache of abstract knowledge. Technicians who work in CME move up through the ranks and need no specialized training, but what they do acquire on the job is an implicit understanding of how to treat bodies and how to treat clients. The way knowledge is passed on in the bioskills lab is not through formal education or even formal training – rather, it is through habitus. This also points towards the tension. There are no institutional teeth in the formal policies that govern the lab, no way that consequences follow if norms for the treatment of bodies are violated. Instead, consequences arise if clients, i.e. the medical professionals, are not appeased. This tracks with other professions which in their earlier stages were in a similar position (Taylor 2008). Like other professions, such as physicians (Ameringer 2008; Halpern and Anspach 1993) and sonographers (Taylor 2008), workers in CME will not be recognized as having any specialized knowledge until they are able to make a claim on definable skills *and* control the modes of entry, the standards, the awarding of degrees, and the systematization of knowledge of the profession (Freidson 1973).

Freidson noted that "the emphasis in sociological writing has … shifted from analyzing the professions' special knowledge and ethicality as revealed in the process of professional education, for example -- to examining their concern with establishing and maintaining a specially favored market position and investigating their relationship to the power of the state, patrons, and clients" (Freidson 1994, 130). This insight is useful in my analysis of CME training and research, since the special knowledge that technicians possess is both in treatment of bodies, and in service to others. Technicians, as the representatives of CME work, are positioned as subordinate assistants to the medical professionals who need the training that they provide. They are their paraprofessionals.

As a profession, bioskills workers cannot independently claim control of any body of abstract knowledge, because they are dependent on the medical profession. The self-definition of bioskills workers is premised on other, more established professions: physicians, nurses, physician assistants, and other clinicians. This means that like the bodies on which they work, technicians themselves occupy a liminal space, given their status as assistants to, and therefore reliant on the whims of medical professionals. This tracks with Freidson's characterization of the paraprofessional, since,

> even the classic, independent professions such as medicine have, perhaps reluctantly, employed bureaucratic controls as part of their professional mission through the delegation of certain technical tasks to paraprofessional groups (e.g., lab technicians, inhalation therapists). These groups are themselves as prone to bureaucratic as professional forms of organization and in some respects bear a subordinate, not autonomous, relationship to the medical profession (Berlant 1975, 262).

The bureaucratic processes that technicians as paraprofessionals are prone to are those of paperwork and the loose standards that shape bioskills. As the medical sociologist Jeffrey Berlant points out in a review of Freidson's work, these bureaucratic processes also work in technicians' relationship to medical professionals, because these are their clients and to some degree represent what they aspire to. For many technicians, this job is a stepping stone to other health careers. They see this paraprofession as a way into healthcare because bioskills work operates within biomedicine, but like any paraprofession, it is not autonomous.

In order to understand the process of meaning-making on the job, I return to the technicians' talk about what goes on when they are working on human tissue. This process of meaning-making, or the everyday feeling of working with bodies, is not addressed in the language of training or bureaucratic processes or marketing for services. It emerges, however, when I ask people how they cope with their work, what they think of when they do their work, how they care for bodies, and what goes through their minds when they do. For this I return to the Northern California lab.

Techs and "Tactical Objectification"

When I sat down with Mario, a technician who had recently been promoted from part-time to full time, he mentioned that making sure the bodies were clean with no excess blood and presentable was important because of "the customer service part of the job." Mario elaborated, "we've had reps and salesmen come in before, sales reps come in, and you can see that they become squeamish, and so we want them to be able to part of the lab and in the lab, and if they're unable to do so because of what the specimen looks like, that's not going to give them the most pleasant time here."

One special note about all these courses is what areas of the bodies were covered up. For instance, Gemma mentioned that "If there are hands, we cover it in Coban (a self-adhesive bandage). We cover the feet and toes with Coban because a lot of people…they feel more connected to these specimens when they see hands and feet, for some reason. I don't know what the reason is, but a lot of people prefer having hands and feet covered."

What Gemma is explaining is a practice, common across most cadaver labs of covering hands, feet, and faces. This happens with the cadavers used in undergraduate (pre-graduate professional) anatomy labs for medical students, before they start dissecting those areas. As Gemma explains, people "feel more connected." And this feeling is pronounced among other people who work with the dead (Ursano and McCarroll 1990).

As my exchange with Gemma continued, I asked her about this feeling of connection; I was curious and wanted to know what went through her head as she wrapped hands and feet. Did she herself feel more connected?

Gemma: Um…I do, but I don't at the same time. I don't have a preference. I'm so used to seeing everything and anything that it doesn't bother me anymore.

Stephanie: So you don't feel connected when you see hands and feet?

Gemma: No, I've learned to disconnect…because sometimes when you wrap their hand, you're holding onto their hand, and it's just that weird feeling you're like holding someone's hand, so I try to disconnect so that I can make my job more efficient.

Stephanie: What are you connecting to?

Gemma: Just saying that this was a person…like before, sometimes we would have like torsos with no arms or legs, so it was easier to disconnect because it was just a man's chest, but when it has hands and feet…like you can see if they have nail polish, or if they have long nails, short nails…like you can see if their hands are rough, or if they're thick…you can see what kind of people they are. Like for me, when I was a kid, my parents had rough hands because they washed dishes and they cook…they do a lot of things with their bare hands, so they get skin calluses. So when I feel that, I can imagine that someone…I can imagine what kind of job they could have. They could have a construction worker's job, or a landscaper job where it requires a lot of bare hand work and it causes a lot of calluses built on their finger pads. So it makes you wonder like what kind of person they were before they passed away. And I try not to go deep into that, to associate the specimen into like someone that I don't know.

This act of wondering, of connecting to the body, is what anthropologists Elizabeth Hallam calls "perceptual oscillation" (Hallam 2017) and Rachel Prentice refers to it as "tactical objectification" (Prentice 2013), when users must both embrace and disassociate from the humanity of the body in the anatomy lab. This is important for technicians to their job "efficiently" it also tracks with other studies that have looked at care for the dead.

James McCarroll's (1993) qualitative studies on the military, specifically with handlers of the dead, give us an insight into why care and distance, although they may sound incompatible, come together in yet another example of tactical objectification. McCarroll et al. write that "handlers of the dead" were discouraged from connecting to bodies, with most of the connection happening to bodies that were more complete. In their study they found that "the appearance of bodies with few visible signs of death was more bothersome to some people than were damaged bodies, which could often be viewed as nonhuman" (Mccarroll et al. 1993, 211). It is a bit troubling to read that people dehumanize the dead, but as with Gemma and Miguel and the other technicians I met, seeing the body as not human did not mean that the body was reduced to simply an object or a commodity. The body still retained its humanness, but technicians just oscillated between seeing the body's humanness at one moment and not seeing it at another. McCarroll et al. offered more data on how this was done, drawing a distinction between management and the people doing the actual work. They found that "Supervisors advised, 'Don't think of it as a body; think of it as a job'" (Mccarroll et al. 1993, 211). There were also tiers to the handlers' reactions. For example, "An inexperienced person was heard to say, 'He can't be dead; he hardly has a scratch on him.' Experienced people advised their younger co-workers not to look at faces" (Mccarroll et al. 1993, 211). This resonated with Gemma's response on "connecting." If she didn't see marks on the bodies she did not wonder where they came from or what had happened to them. When she saw marks, fingernail polish, or callouses, she started to wonder about a person, not in disbelief that they were dead, but about what kind of person they had been. In one instance, McCarroll et al. write about an experienced personnel member who still felt surprise at seeing a body, explaining that "When he first saw the body, he did not recognize what had happened, but when he did so, he wondered whether the individual had felt the cut, suffered, or lived long after the injury" (Mccarroll et al. 1993, 211). Much like Gemma wondering what kind of person the body was before they passed away, even a senior technician or personnel who has learned to "think of it as a job" cannot objectify for too long. Gemma needed to keep this tactical objectification in place, and found that this was easier to do with a lone torso than with someone's hands. Why might this be?

The medical ethicist Nicole Piemonte argues that these unanticipated (and perhaps unwanted) moments of connection occur when students or medical professionals "…engage in a kind of 'existential reflection.' They enter a privileged space where they can experience 'a moment of fully understanding what it means to be human'" (2017, 100). And while Piemonte writes this in relation to physicians and patients, it is true as well for technicians as medical paraprofessionals, in how they relate to the bodies in their care. These moments "are what disencumber physicians and medical students of narrow, inauthentic 'they-self' understandings of care and reorient them back to the human connection that makes genuine care possible" (2017, 100). I argue this applies also to Gemma and other technicians: when they see bodies on the table as themselves, they break the "they-self" divide.

There's a particular relationship that the technicians exhibited from the start. They began their experience in the lab through the apprehensive expectation that they were going to see dead bodies. Really, being able to cope with seeing dead bodies was a must. More than having an understanding of clinical procedure, more than having an anatomy background, more than being familiar with research requirements, the technician had to be ok with being around dead bodies, their ability to perform work rested on it.

What exactly did being ok with dead bodies mean in the context of the research lab? For managers, it meant making sure that people knew what to do, that projects ran smoothly, that there was control. For technicians it meant doing their job, while hoping that this would be a step in their career development, that the experience would aid them in their next position. What we find, however, is that the knowledge they hope to acquire is not often accessible to them. Technicians learned how to do their job, through habitus, but they could not jump from this form of knowledge to formalized professional knowledge. Learning how to treat and care for a body through this form of training is not recognized as medical knowledge but it does have an impact.

I would like to offer a short vignette from an informant who called me a year after my fieldwork to relate to me a story of what had happened to him at a recent memorial service. He left the following message as a voicemail to me.

Bill's Story

> *I was helping with putting the bodies in their crematory boxes…There are students in this lab at the time along with the faculty. They were on the other side of the room and I had my back to them. I knew I had some privacy and I was also aware that I was going to be the last person to lay hands on this body that I was carefully putting into this cardboard box... I had the limb in my hands. I knew it was going to be put in a crematory and I was the last person to put my hands on it. I also knew that this was no longer a donation to science, but I still wanted to learn, so maybe this was a good time to take advantage of that. In almost a stroke of impulsiveness I grabbed the limb, right down at the ankle, where skin was wrapped around it, and I cracked it in half to see what I could find inside; some truth whatever it could be. What I felt was a sickening feeling, like I had violated someone. This humanity piece I realized, was gone with those who are no longer alive...that's what I was able to find in that. It wasn't any anatomy inside that limb that helped me feel like I had, I had...did the right thing. To me it felt like I was trying to achieve some higher need or find some goal-illusion that led me to, to step on my own morals and ethics along the way…I just thought it was worthwhile to let you know, in case that might help with you in... kind of describing the feeling of, of being somewhere that can be so resourceful, yet so depriving at the same time...I felt like I had all this, this unbound, boundless knowledge...I had work to do and I wanted to be a student someday... [which] made it that much harder for me to, to not feel deprived or to feel like I was, I wasn't missing out when all the faculty and students were in there.*

Bill had shared this story during a cadaver memorial with a number of his colleagues and others. At the time, he had just finished his first year of a Physical Therapy graduate program. The story he told was of the year prior while Bill worked in an anatomy lab as a technician. Bill worked at the second training laboratory I observed in Northern California, one that hosted both medical school and continuing medical education courses. Because Bill was staff, not faculty, he could not teach anatomy or anything else that produced medical knowledge, as it is traditionally understood and acknowledged by the medical profession. Rather, Bill was at the lab, usually on his own, charged to maintain order in the spaces where other professionals were taught.

When he and I met, Bill had recently graduated from college; he had been working at the anatomy lab for almost a year. A former athlete, he was a brawny, fit young guy who at first glance seemed like most of the bright-eyed first-year medical students. What became clear in the first few minutes of interacting with Bill, however, was that he was young and did not carry himself with the air that medical students (or most first year clinical professional schools) do. He was reserved. Bill cautiously opened up to me about working in the anatomy lab. He told me about how he had found the job because he wanted to work at the Northern California medical school to get more exposure to physicians, to help his application to Physical Therapy graduate school, and because of his genuine interest in the subject of anatomy.

Hidden Labor

Bill in his year-long tenure as a lab technician had been responsible for the maintenance and clean-up of the lab and the cadavers in it. He was in charge of making sure the cadavers were used in the lab space and disposed of after educational courses. For his time working in the anatomy lab, he had not been privy to the same instruction as most of the other users of the cadaveric material (i.e., medical students, residents, graduated physicians, and others).

Bill explained that while conducting his work he had seen the students and faculty learning and teaching, respectively. He had admired the way that these students and faculty could "bring [the cadaver] to life with the way that they held it and the way that they could describe it and discover so much within just holding a limb." This was particularly hard for him to witness as an outside, because as an aspiring student he was responsible for "a lot of the [lab and cadaver] maintenance, which was the majority of what [he] did" but not privy to the teachings occurring around the cadaver. Bill noted that he "would strategize [his] route so that [he] could get within earshot of that table just to see if [he] could learn something and have some insight from these bodies that [he] had been with for so long, mostly in solitude." He highlighted the irony in the fact that he, the caretaker of the bodies, the person responsible for their daily care and cleaning, was kept at a distance from them as tools for learning.

In his re-telling of his experience in the lab, Bill also addressed the role that he as a technician played in the apparatus of medical education. Bill was not an anatomy instructor or a teaching assistant, but a technician in charge of seeing that the lab and the cadavers in it were cared for. This included maintenance, which was "anything from creating wetting solution for the cadavers to keep them preserved, to dousing them with the solution…to shrouding the cadaver, to marking the ear tags, making sure that they're matched up along with their respective tissue bin." He also had to keep the bodies covered, and make sure they were not in a state of decay, and that they were tracked. His work was something that has remained invisible in the history of anatomy and medical training. Rarely has cleaning work been profiled. Bill was not expected to have anatomical knowledge, nor was he privy to the education that was being imparted to medical students, even though he himself was preparing to go into a graduate program.

The medical anthropologist Karen Messing (1998), wrote about this phenomenon as it relates to caring work, specifically cleaning work. Messing's analysis of hospital cleaners surfaces the stigma and difficulty these workers face, but she also highlights the strategies that cleaners employ to deal with this invisibility, namely, "by making the work visible, emphasizing their competence, and exacting respect" (Messing 1998, 177). Hospital cleaners would use special solutions for their cleaning, take pride in their work, dress up for their work, and put special emphasis on their work (Messing 1998).

Similarly, Bill made his work visible, emphasized his morality, and took pride in his work. In seeking fulfillment in his position, Bill would do "a thorough job…sometimes staying until 12 at night" to make sure the lab was cleaned and prepped for the next day, or, making sure the maintenance work that he was tasked with was done thoroughly. He also would plan routes around lab stations while he carried out his work, to both see what was being taught, and maybe, hopefully, be seen himself.

Bill's story highlighted the professional boundaries between the technicians as keepers and caretakers of the lab, and the faculty as the educators. He was not "allowed" to open bodies to demonstrate this knowledge. Bill's story also outlined the hierarchy inherent within the lab, with faculty and students at the top and the lab staff at the bottom. Learning and medical exploration were the job of the faculty and students. Janitorial and care duties, and the need to stay in the space long after the "learning" had been done, fell to the technician.

As medical anthropologist Byron Good (1994) observed in his analysis of the experience of medical students as they move through their medical training, the anatomy lab is unique in that it "is demarcated as a separate order, having distinctive moral norms...the human body is given new meaning, and a new manner of interacting with that body is appropriate" (1994, 72). For Good, the lab is a special place, where certain actions are allowed, where the body is conceptualized differently, but which is beholden to particular moral norms. Good explains that what was upsetting to witness -- and to do --was dismemberment (1994, 73). Similarly, "in contemporary medicine, anatomy works as a threshold experience for medical professionals because they alone violate the taboo as part of their training. The content of the knowledge depends on the violation of the taboo (access to the interior of the body and to death)…the first-hand experience of anatomical dissection has become a guarded professional ritual, a marker of special knowledge" (Bender 2002, 1179). So the anatomy lab, or the surgical lab, allows for the socially legitimated violation of the taboo, and it also helps the student or the user unlearn to see the body in the ordinary manner, and learn to see the body under the "medical gaze" (Foucault 1975). Ultimately though, this ability to see, through the medical gaze, is an ability that is closely guarded, it is a special knowledge that students and faculty are allowed, but one to which technicians such as Bill are not privy.

Crossing Boundaries by Finding Boundaries

In a follow-up conversation, Bill reiterated what he had mentioned in his voicemail: that he had felt frustrated by his lack of access to the training that other people had had in anatomy. In his desire to learn something, to have the same experience as others in the room, he had "cracked [the limb] in half" and at once the impulsive "need to know" feeling was replaced with a new feeling, of having done something wrong with the body part. This impulsive feeling is another iteration of tactical objectification (Prentice 2013). Prentice profiles residents who need to cut into bodies in order to "make" knowledge "visible," but oscillate between dread and pursuit of knowledge, or closeness and distance; much like those residents, Bill had to break the ankle to see something. To do so, he disassociated the person from the body. But the tactical refocusing, permitted in the unique space of the training lab, cannot be permanent. Bill felt that even while the limb on the table could be cut and disarticulated open, his doing so when the limb was in the box felt wrong.

In some ways, Bill's sharing of the story relates to Charles Bosk's (2003) analysis of surgical residents' training and the emphasis on their moral training over their technical training. There were some errors that were forgivable, technical mistakes. There were also other kinds of errors that were remembered, mistakes that were emblematic of a person's character—moral mistakes. Bill's mistake could be considered a moral one: he did not carry out the obligations of his position, packing the limb as was into the box. What kept this from being a full character deficiency was that Bill felt remorse over it. He independently recognized that he had made an error. Perhaps part of the reason that he was able to break from procedure was because of the normalization of how cadaveric material could be used in the lab: it was cut, broken, sawed, hammered open.

The lab had necessitated that Bill continue the abstraction of the body required in medical training, even though he himself was not the intended recipient of the knowledge being imparted. This same abstraction leads to the medical gaze and ultimately, in bioskills, leads to the commodification of bodies. The lab normalized opening the body, not as mutilation, but as necessity for biomedical education and research. The lab, and biomedicine more broadly, trained users of cadaveric material that transgressing the moral norms of conduct with a human body was a necessary in order to save, treat, or learn -- the special circumstances of the training lab make it so that this is excusable. It also creates two ways of knowing: knowledge for those within the lab and knowledge for those outside the lab. This knowledge inside the lab involves not just "treating with care" -- rather, it involves a recognition that some people can treat with a more violent care than others.

Two ways of knowing means there is a two-tiered system of knowledge. On the one hand, there is the knowledge gained by opening the body, of learning what's inside it, and therefore, treating the body with a more brute, violent care. This knowledge is also the type of knowledge that is recognized by the medical community. The knowledge that leads to traditional "medical knowledge." The other way of knowing is knowing how the lab operates and how bodies come to arrive and how they must leave. This knowledge, possessed by the technician, is not recognized in the medical community. This knowledge is not seen as medical knowledge, but it is crucial for understanding how medical training occurs—and who is recognized for their labor.

Getting Seen

Bill's retelling of the story was also prompted by his desire to tell the story of what it's like to be in the lab "minus the educational component", to be blocked from accessing instruction. Much like other stories of people who contribute to biomedical care without gaining the acknowledgment (Crain et al. 2016; Messing 1998), having the medical knowledge and resources at his fingertips — because he was indeed touching the source of knowledge, the cadavers — was aggravating for Bill, since he could not make anything of it without the educational navigation that others in the room were getting. This knowledge was kept from him because of his status in the lab, as worker not as student. When Bill was a tech he had to fulfill his role that necessitated manual labor not intellectual labor. As Freidson has pointed out, this falls along a hierarchy of professionalization and labor, with manual labor lower on the hierarchy than intellectual labor (Freidson 1973). Bill did not have to learn anatomical landmarks or surgical techniques, he had to learn how to anticipate student's needs and conduct lab maintenance as efficiently as possible. While these on their own were labor skills, they were not recognized as intellectual by users of cadaver tissue or by Bill himself — at least, not at that moment.

Bill knew that he had special privileges by virtue of being in the lab, but he also knew that he was limited in what he could learn. While they had uninhibited physical access to the lab space, the techs had a limited access to the learning and academic knowledge imparted in the lab. Techs spent hours in the space, caring for bodies, but when courses occurred, they were kept to the margins, to the periphery of the table. Techs were assistants, not students. And as close as he was to bodies, Bill did not have the opportunity to study anatomy if the other users were not opening the bodies themselves; he learned no anatomy beyond what he had already learned in his undergraduate education.

Bill felt that he needed to tell his story for those who were not students, "who could see the lab for what it is minus the educational component*,"* as a place of labor rather than a place for transmission of medical knowledge. Bill had been nervous when he told that story at the cadaver cremation ceremony. He felt that he faltered along the way because he was scared that he had shifted the topic of the ceremony into something people did not want to think about — drawing attention to the way the bodies are treated in the lab rather than the memory of the deceased. His fears and anxiety were assuaged by the response of those present —he said that many who were present understood him. What was interesting was that those in attendance were only students and staff. The memorial was not open to donor families. Bill explained that the people he was afraid of being misunderstood by were the body donation organization staff who run the ceremony, but that they were the most sympathetic to his story. For them, it was an understandable story of the work with cadavers, the work done by technicians who are similarly positioned. The lab provided "*unbound, boundless knowledge*" but no opportunity for access to *that* type of knowledge and little to no recognition of their own contribution towards making medical knowledge happen. He was told that if there was a place to share his story, this would be it.

Conclusion

Caring and cleaning labor are types of work that are often cast out of the medical narrative. In relation to work with cadaveric material, work that requires care and cleaning, this too goes unnoticed and invisible. Much like Bill wanting to "see" what was inside the limb, his sharing of this story was his attempt at making visible his experience, and in a greater way, the labor of technicians who prepare and work with cadaveric material. Bill's, and Gemma's, and Jasmin's, and Mara's, and Tomás' work also show us the different norms inherent to work with cadaveric material and how these produce tensions. Bill wanted to see what was being taught but had to do his job. Gemma wanted to do her job, but also couldn't help but build a story. Tomás wanted to make the most of the cadaveric material, but learned a lesson on care. All the technicians wanted to do their job, to follow protocols, or the regulation they felt imposed by body donation organizations, and then, the "clients" they serviced. Technicians also wanted to do good; to do a good job; to treat the bodies right; to learn something for future use; to work in biomedicine.

We should take seriously the experience of the paraprofessional labor that more and more takes place in our teaching labs, hospitals, and institutions. The work these technicians do is instrumental to the formation of clinicians. Allowing Bill, and techs like him, to tell their story allows us to make visible and explore the tensions and ambivalence inherent to labor with death and the dead.

Chapter Four: Disposing Bodies

> Cadavers, body parts, tissues and bony remains always come from particular individuals, and even when these individuals lived in the distant past, they can never be completely dehumanized.
>
> - DG Jones, Human Anatomy: A Review of the Science, Ethics and Culture of a Discipline in Transition, 2017

Introduction

"I packed them in their Christmas tree boxes to send them off to be cremated…and spread [in the ocean]." These were words that Bill used to describe the disposal process of the cadavers for which he was responsible. As I described in the previous chapter, his account also conveyed some of the ambivalence that Bill felt about the work he did and the actions he had to take to remember that cadavers were human.

This brief quote from Bill offers two images useful for thinking about this chapter, and about the use of bodies in general: Christmas tree boxes, and the spreading of the cremains (cremated remains) in the ocean.

First, on the use of Christmas tree boxes: these large cardboard containers that hold pine trees for the holiday season are curious metaphors to use for the disposal of human bodies, but they fit. Although they are commodity objects, they also conjure themes of gifting, of particular rituals of congregation and reciprocity, and of the cyclical motion of gift giving. And lastly, though the tree is now a commodity, it was until recently also a living thing. Whether intentional or not, the significances these images evoke will resonate in the chapter as we move further along in exploring how and why cadaveric bodies fall into rhetoric of "the gift" even as they also disrupt it.

Second, the ritual described of cremating and spreading ashes in the sea, much like the memorial ceremonies that some medical schools carry out for donor families of cadaveric bodies, brought the bodies back to a space of social inclusion. Spreading the ashes of donated individuals, no longer considered to be cadaveric bodies, calls attention to the cycle of "life" that cadavers have in continuing medical education (CME). Their cadaveric life begins with a transformation (see Chapter 2) from donor body to commodified specimen, and it ends here with the transition to cremated individual. Such rituals of disposal are the next and last phase of work with bodies. They serve to re-center humanness. This return of the body to humanness acts in both a material realm and a metaphorical realm. Bodies that have been pieced apart and spread to various projects are sometimes returned or reconstituted. Depending on length of time they have been used, some body parts may have to be cremated individually before being reconstituted. But if cadaver bodies are brought back together, this is when it is done — during disposal.

The ritual of disposal also reflects the point at which technicians or users in general reconsider what the cadaver is and where it has to go. While a technician is packing a cadaver, or reconstituting its various parts, the body comes back into focus as an entity that is — and has always been — human, if for no other reason than that (following a standard of the industry) these bodies are re-wrapped, re-cleaned, and re-packed to be cremated. And while the body may be sent away just like any other material sent to be incinerated, the disposal of bodies is not called "taking out the trash" or "material for incineration," it is referred to as being "picked up for cremation."

This chapter details how the cadaveric body is treated at the end of its "life" as a cadaver. I will describe how bodies are reconstituted and ultimately transformed into a not-quite-person-not quite-object after a process of unmaking and use. The focus of the chapter is on the underlying thoughts and actions of technicians and other users in the treatment of the dead throughout, and especially at the end of, the cadaveric body's use cycle: what technicians, managers, and other users term "respect." I will describe what respect looks like, and analyze what it means in the context of cadaveric bodies that have been commodified and used in a biomedical education and research settings, considering how people "do" respect as well as how that concept of respect travels and morphs across various strata of organizational power. Managers and heads of educational and research labs speak about and enact respect differently than do technicians. For that reason, the concept of respect is both a universal and a subjective notion that affects the concept of donation, the gift, and the role of science in the treatment of the dead. I will use the concept of a boundary object as a lens with which to describe these varying conceptions of respect. Analyzing respect as a boundary object is useful in interpreting the treatment of cadavers in CME training and research because of the varied ports of entry that a boundary object allows. Susan Leigh Star and James Grisemer (1989) characterize boundary objects, "as objects which are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites" (1989, 387). Lastly, I will explain how this concept of respect frames new understandings of the gift, the notion of reciprocal sociality, and how body donation is fundamentally tied with the imaginary "unproblematic" good of science.

Last Transformation

In the previous two chapters, I have attempted to demonstrate how and through what actions the cadaver body is transformed. I have also traced how the cadaver is used and who uses it in continuing medical education. Now, in this last step of what I am characterizing as the cadaver's life, I return to the last transformation of the cadaveric body: its disposal. While the cadaveric body cannot return to its status as a whole person, it does figuratively, and sometimes literally, return to a status of being more than a commodified object. Through disposal practices, we see how people seek to memorialize the bodies they have worked on and to bring peace through ritual, more for themselves than for the cadaver body itself.

After its use by medical professionals, technicians and workers affiliated with CME send the cadaveric body "for disposal." What this means is standard for CME training and research labs and body donation organizations alike: the bodies and body parts are sent to be cremated. However, where and how this is done varies, as do some of the things that happen before and after cremation.

To be clear, no body donation organization gives body donors any option about how their body will be disposed. Cremation is the standard method for disintegrating the cadaveric body, any body parts, or any form of human tissue. What some body donation organizations do offer are options for donors' families to choose how the cremains of the donor will be discarded. Options include return of select cremated remains, sometimes the cremains of the whole donor body, and at other times the cremains of whatever body parts may have been returned to the organization. Most, however, do not offer this; they simply promise that the body will be cremated and the ashes taken care of either by scattering at sea (by far the most popular option), burial in a mass plot, or placement in a mausoleum. Furthermore, when cadaveric material goes to cremation can vary, dependent on the body donation organization's policies and the period of educational or research use. These periods of use can end after anywhere from 4 weeks to 2 years to never (United Tissue Network n.d., 2018a). Each organization specifies their policy in their donor forms and on their websites, although the contract language does not always coincide with the language used in advertisements on the internet.

For example, a sample of four stand-alone whole body organizations from the Association for Bioskills Laboratory Excellence (ABLE) website shows how the language advertised to donors on what will happen to their bodies during and after use is often vague and counterintuitive. Analyzing their language gives us an understanding into what Lesley Sharp described as "practices that simultaneously commodify the body while denying that such a process occurs" (Lesley A. Sharp 2001, 113). This allows us an entrée into how organizations set-up their donation process but also, perhaps more importantly, the assumptions technicians who work at these organizations and the users of tissue have.

One such organization, United Tissue Network (UTN) is a non-profit headquartered in Oklahoma with an annual gross income of over $5 million USD and offices in Arizona and Florida as well as Oklahoma. While they do not have a training and research facility at their donation facilities, UTN has partnerships with training and research facilities across the country, and can send their trained technicians to courses at those facilities as well as others.

On its public-facing website, UTN promises to return cremated remains to the family within 4-6 weeks, and states that all cremations are performed by a licensed crematory. In UTN's actual donation forms, however, the language used is more wide ranging and less clear. It simultaneously promises the return cremated remains, while dramatically extending the timeline for the body's use. The United Tissue Network form states: "I understand that the Crematory will make every effort to avoid inadvertent commingling of minute particles. Partially cremated remains will be placed in a container designed for the shipping of cremated remains. Partially cremated remains will be returned within 4 weeks to 2 years" (United Tissue Network 2018a).

The donor forms inform patients that their bodies will be used and then returned, although the assurances about wholeness are vague, and the timeline for return are broad and unpredictable. While this is truthful advertising, it is unexpected vis-a-vis the promissory and exact language of the rest of the campaign. Regardless, UTN's language is not unique. Other organizations, whether non-profit, for-profit, or academic institutions, utilize similar strategies to discuss donor disposal and final disposition.

Another prominent non-profit organization, the Anatomy Gifts Registry (AGR) located in Maryland, describes itself "as one of the oldest and largest independent non-profit whole body donation programs" (Anatomy Gifts Registry 2018a) established in 1994. AGR has a comparable income to UTN, about $5 million, but has a longer-standing reputation and has an associated CME training laboratory in its facility. It also very prominently displays its nonprofit status and makes that part of its promotional materials. The AGR promises to handle all arrangements for donor removal, transport, cremation, and the filing of the death certificate, all at no cost to the donor or their family. The only fees that may be incurred are for the shipping and handling of ashes and for copies of the death certificate, as these are separate from the donation process. AGR does not provide a donor form online. Rather, it directs potential donors to fill out forms to see if their "application" has been accepted. This language is odd in that while most organizations state that not all donors may be suitable for donation, none refer to their informed consent forms as "applications."

AGR does specify a few other things about their disposal practices. They handle the cremation of donated cadavers and body parts, stating that it is "caringly performed at AGR's facility & the cremated remains are provided to a designee in a timely manner…The provision of cremated remains is optional & is provided usually within 4-6 weeks of AGR's receiving the signed cremation authorization" (Anatomy Gifts Registry n.d.). Under a page titled "Client Services," however, AGR's website states that: "AGR does not require tissues to be returned to us after use, but only mandates that applicants use methods that adhere to local laws. This can save on costs. If local methods aren't available, you can have them shipped back to us for disposition at our facility" (Anatomy Gifts Registry 2018b). Similar to UTN, AGR's user-oriented practices are in tension with its donor-oriented language. AGR's language is both direct and vague. It promises return of remains cremated in their facilities within 4-6 weeks, and yet at the same time it also allows users of tissue to cremate the remains in the users' own facilities so long as they comply with local and state law. And while AGR must have a strict vetting practice, it states that it has worldwide operations, effectively complicating disposition practices and on-site cremation.

AGR's user request forms were not available on the website, nor from their representatives. An email from one of their staff explained that, "Formatting and some questions are proprietary, as we have to meet AATB standards for a great deal of it and competitors may benefit from it, so we only share it with those requesting anatomical specimens for research, education, and training purposes" (Kraft, personal email communication, January 3, 2019). Interestingly, this response reflected the norm, as most organizations (for-profit, non-profit, and medical school affiliated) did not post their forms online, but indicated that they were open to email and phone requests.

One of the largest for-profit organizations in the country, MedCure, is headquartered in Oregon, but has offices across the U.S. and in the Netherlands. No standard current estimate of MedCure's net worth exists, but MedCure has received upwards of 11,000 donors and has distributed over 51,000 body parts (Shiffman and Grow 2017b). While exact figures are hard to come by, whole cadavers can cost between $3,000 and $5,000 (Shiffman 2016). As one of the most well-known body donation organizations, MedCure's reach is vast. The company has a very robust marketing campaign. They have also been raided by the FBI for reasons that have yet to be disclosed, although concerns have been raised that this could be related to human tissue distribution (Shiffman and Grow 2017b).

Even so, MedCure's donation language under the donor tab on their website states that "cremated remains are returned to the family within 8-12 weeks or scattered at sea" and in a section lower on the same page the company states that "cremated remains are sent to the family approximately 6 to 12 weeks after the time of passing" (Medcure n.d.) Like other body donation organizations, however, MedCure's donation form seems to imply a different disposal timeline for donors.

The form asks donors to,

> authorize the procurement of all necessary tissues, organs, and anatomical specimens, including whole body, for medical research and educational purposes and understand tissue/specimens may be used *indefinitely into the future*. I understand that the body may be subject to extensive preparation and/or *long-term preservation*…upon acceptance of donation, MEDCURE will be responsible for any costs related to the donation including transportation, cremation, return of partial cremated remains to family or a scattering of cremated remains at sea…The cremated *remains returned will not include* body tissues, organs, or anatomical specimens *procured for medical education or research* purposes. An open casket viewing is not possible with whole body donation and *no un-cremated remains will be returned*" (*emphasis mine*) (Medcure 2017).

What these statements reveal is an inconsistency in the logic of what the body donation organizations advertise, and what the work actually entails. I highlight this discrepancy in what is promised with regard to treatment of bodies only to demonstrate that even as organizations attempt to follow the expectations of tradition as it pertains to dead human bodies, the requirements of the work (use, research, education) require flexibility to account for the unpredictability of science, learning, or exploration. Promising the return of cremated remains of the family member at 6-12 weeks flies in the face of what the donors signed up for in their consent form—to be used indefinitely into the future, in long-term presentation, or that un-cremated remains will not be returned. What is promised is inconsistent with what is feasible.

Science Care, the most widely known and largest whole body donation company in the country and the world, is the leader in not only receiving donations, but in tissue provision. With a an annual revenue of 27 million USD (Shiffman and Grow 2017a), in 2018 alone Science Care's registered donors increased by 54%, with a projected 25,000 donors at year's end (Business Wire 2018). Similar to its private, for-profit organizations, Science Care uses language loosely in its appeal to register donors, including referring to itself as a "fee-based service organization" (Science Care 2015a). On its FAQ page, under the question "Do you charge researchers/permit tissue brokering?" Science Care answers that it, "charges reasonable fees for services provided to the medical research and educational community for the recovery, testing, processing, preservation, final disposition, quality control, storage and transportation of human tissue" (Science Care 2015a). While accurate, at no other point in its promotional material does Science Care disclose this. Additionally, it does not call itself a fee-based company in the informed consent materials given to donors, i.e. the donor form. It does, at least, explicitly list under disclosure four that it is a for-profit company, so that donors are informed (Science Care 2018). This is significant in that it matters how the donor-facing side of the organization presents its mission and procedures, in relation to how it presents these on its client-user facing side.

Science Care does not promise that cremated remains will be returned to families in every case, as all of the tissue donated may be "used for a variety of medical research and education projects, such as cancer research, Alzheimer's research, and training surgeons on the latest medical advancements" (Science Care 2015b). But the organization does promise to return any unused tissue in the form of cremated remains within 3-5 weeks to the designated family member, and that those remains will be individually cremated, whatever they may be. This returned material is termed "Initial Remains."

Although Science Care is the most consistent organization with regard to its informed consent language, it still remains ambiguous in detailing the process of cadaveric body treatment. Science Care's own promotional material emphasize the importance of donation by obfuscating what the donated body would be used for. Indeed, this obfuscation isn't just a by-product of the contradictions inherent in their language; they use this ignorance as a recruitment tool. We see this again in their promotional materials.

In their "Every Body Matters" (Science Care n.d.) campaign, Science Care begins their promotional recruitment material with "She/He doesn't know" and shows either a picture of a little girl or little boy holding on to an adult who is dressed either as a first responder or in military fatigues. After "She doesn't know" it reads: "…that body donors play a critical role in helping to train deploying surgeons, nurses and combat medics with the skills necessary to increase readiness and manage trauma situations in the field. All that matters to her is that her daddy is finally home. And that's the way we like it." In the picture with the little boy, after "He doesn't know" it reads: "that the that the (sic) firefighters and EMTs who saved his family that night were trained in emergency-life saving procedures using body donors. Or that thousands of first-responders across the country use body donors to train for situations like this. All that matters to him is getting back safely to his family. And that's the way we like it." The connections between body donation and the heroic are made very clear here, and yet the entire process is still shielded and delivered on the premise of ignorance, of being hidden. Indeed, that the process is intentionally hidden is demonstrated in the repetition of the lines "doesn't know" and "that's the way we like it," even as the recruitment materials seem to be revealing something of the process.

He doesn't know...

...that the that the firefighters and EMTs who saved his family that night were trained in emergency life-saving procedures using body donors. Or that thousands of first-responders across the country use body donors to train for situations like this.

All that matters to him is getting back safely to his family. And that's the way we like it.

EVERY BODY MATTERS

REGISTER TODAY

Science Care 800.417.3747 • www.sciencecare.com

She doesn't know...

… that body donors play a critical role in helping to train deploying surgeons, nurses and combat medics with the skills necessary to increase readiness and manage trauma situations in the field.

All that matters to her is that her daddy is finally home. And that's the way we like it.

EVERY BODY MATTERS

REGISTER TODAY

Science Care 800.417.3747 • www.sciencecare.com

She doesn't know...

… that today's medical researchers use body donors to help identify and discover new biomarkers in cancer patients, leading to improved treatments and breakthrough therapies. Or that surgeons all over the world spend countless hours perfecting their tumor removing techniques and skills using body donors.

All that matters to her is getting first place in the school Science Fair. And that's the way we like it.

EVERY BODY MATTERS

REGISTER TODAY

Science Care 800.417.3747 • www.sciencecare.com

She doesn't know...

… that the doctor who performed the surgery to help partially restore her hearing with a cochlear implant device was trained on the procedure using body donors. Or that thousands of children and adults are now successfully going through this procedure every year with surgeons trained on body donors.

All that matters to her is when her next play date is going to be. And that's the way we like it.

EVERY BODY MATTERS

REGISTER TODAY

Science Care 800.417.3747 • www.sciencecare.com

Figures 4.1 – 4.4: Science Care donation campaign. The first picture shows a young boy carried by a firefighter. The second picture shows a young girl hugging a person in military fatigues. The third picture shows a young girl wearing lab goggles holding a molecular model. The fourth picture shows a young girl with her hand on her mouth looking down. The first picture starts with the text "He doesn't know" in large lettering followed by smaller sized text. The other three start with "She doesn't know" in large lettering followed by smaller sized text (Science Care n.d., n.d.).

Nowhere in these promotional materials are examples provided of how treatment of the dead at the time of disposition is handled. With the exception of UTN, no other organizations' materials I reviewed, including those of the Northern California and Puget Sound body donation organizations, offered any indication of *how* users of bodies would dispose of bodies. What happens when bodies are ready to be disposed? Do cadaver bodies go out for disposal with other bodies? Commingled? The process of receiving and preparing the bodies was left to the organizations to figure out.

Best Practices and Standards as Suggestions

Searching for evidence about the practices of these organizations, little insight is offered into how "exactly" the bodies need to be used. The vetting process (as outlined before; see Chapter 2) accounts for the facility to which the cadaver or part will move, but it does not descriptively enumerate just how the body needs to be treated. An analysis of the Best Practices Guide for Donation Programs, published by the American Association of Clinical Anatomists (AACA) and the Standards for Non-Transplant Anatomical Donation by the American Association of Tissue Banks (AATB), reveals that guidance for how members and associated organizations should treat bodies at final disposition is limited.

The Best Practices Guide is readily and publicly found on the AACA's website (AACA n.d.). The Best Practices document is in draft form, as the file name makes clear, and is twenty pages long (AACA 2017). The previous iteration of these standards ran only to two pages. In this expanded best standards iteration, there are more details about what donation programs should do with donated tissues. Notably for this analysis, the parameters the AACA suggests for final disposition of a cadaveric bodies consist of three bullet points. These are,

> - Final disposition should be determined by the donation program and shall be in compliance with federal, state, and local regulations for disposal of human remains, implanted medical materials, or other applicable regulations, and per the directives listed on the document of gift
> - Details of the final disposition should be communicated such that potential donors or other persons legally authorized to make a donation decision on another's behalf are aware of the method of disposition, advanced handling options of cremated or hydrolyzed remains, the possibility of comingled buried, cremated or hydrolyzed remains, and the expected time between donation and final disposition
> - Proper documentation of the final disposition should be included in the donor record (AACA 2017).

The AACA's suggestions for Best Practices are broad and consistent with the language that body donation organizations use. The best practices on how to dispose of cadaveric bodies lay out only the administrative requirements as tied to the tracking, documentation, and legality of disposition. Little is said and much is assumed about treatment of the body at disposition, save the suggestion to disclose handling of the cremated or hydrolyzed[11] remains and comingling.

By contrast, the Standards for Non-Transplant Anatomical Donation are not publicly available and are behind a paywall by the AATB.[12] The AATB Standards is a 146 page document that covers suggestions for non-transplant whole body donation organizations. The AATB claims that the standards aim "to assist professionals in this parallel [to transplant tissue banking] field and to support public trust in donation. Entities that participate in NTAD are entrusted with responsibility through the entire process – from authorization through final disposition."

The AATB Standards define Non-Transplant Anatomical Donation (NTAD) as *"*a donation of a whole body, organs and/or tissues authorized and used for education and/or research prior to release to distribution inventory" (AATB 2017), while Non-Transplant Anatomical Material (NAM) is defined as "whole body or parts of the body, donated for use in education and/or research that has been fully prepared, enclosed in its final container, labeled, and released to distribution inventory" (AATB 2017).

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[11] "Alkaline hydrolysis, sometimes called water or green cremation, is a water-based dissolution process for human remains that uses alkaline chemicals, heat, pressure and sometimes agitation, to accelerate natural decomposition, leaving bone residue and a liquid. The liquid is considered a sterile wastewater and discharged with the permission of the local wastewater treatment authority and in accordance with federal, state or provincial, and local laws" (Cremation Association of North America n.d.).

[12] I received my copy through a body donation organization representative who while not offering me their cadaver request form, pointed me to the standards of the AATB and attached the standards which were otherwise proprietary as well. Showing that while keeping some information "proprietary" they were willing to share other info to legitimize that they were upholding an association's standards which had no legal authority. Her correspondence indicated that:
"MedCure has a policy of not sharing our controlled forms with those that are not customers.
All of MedCure's forms follow the Standard set by the AATB, (attached for reference). Relevant sections to reference, as to what is included in our forms are:
SECTION G REQUESTS FOR USE OF NAM
NT-G.1000 REQUESTS FOR NAM 56
NT-G1.100 Submission of Requests for NAM 56
NT-G1.200 Evaluation of Requests for NAM .... 57" (personal communication).

Further, the AATB Standards detail how NAM should be labeled for final disposition, but not how it should be treated. The document states: "NAM being prepared for final disposition is to be placed in a suitable container and appropriately labeled in accordance with applicable laws and regulations"(AATB 2017). And similarly, "All NTAD that will be cremated for final disposition and returned to the authorizing person shall be placed in a suitable container and appropriately labeled in accordance with applicable laws and regulations" (AATB 2017). The difference comes when the body donation organizations delegate the disposition of remains to the users. The AATB Standards only ask that a procedure be established, that should "include obtaining a written attestation from the educator and/or researcher that they understand and comply with local, state, and federal requirements for disposition of the NAM" (AATB 2017). Nothing in these standards specifies how a body should be prepared during use and for disposition.

Evidently, informed consent, donor forms, promotional language, standards, best practices and the guiding principles of body donation organizations vacillate between treating the body at the end of life as person or as an object. This is not necessarily deceptive, but it is also not clear. Organizations are caught in the ambiguity of the process, and that works to their advantage. Promises are not exactly broken, but neither are they transparent. This goes hand in hand with the blurring of distinctions between donated (gifted) goods and commodities. As discussed in Chapter 2, the cadaver body gets transformed from person to usable, and importantly *ownable* good(s). What is interesting is the use of language that blurs lines between gift and good, between precious donation and costly commodity. As we saw, this was important in the beginning of a cadaver's "life," and it still remains important at the end. The industry of cadaver donation is loosely regulated and while bodies are donated, they are charged fees for use. Popular understanding tells us that gifts are differently laden with meaning than commodities: we exchange gifts, but we purchase commodities. So, too, is their treatment differentiated.

Moreover, given the lack of regulations it is apparent why most body donor programs rely on guidelines from anatomical organizations or their own organizational history in the treatment of cadavers for use and disposal. This leads to variability and little correspondence between organizations. It also limits our ability to compare *in situ* practices with cadavers by technicians in body donation organizations, with those in CME research, and in education facilities. Instead, what we are left with is what technicians kept returning to over and over in their remarks: respect.

On Respect

“I treat them like I would like to be treated.” Again and again I heard this adage as the most logical definition of respect. However, I found that treating cadavers with respect entailed a universal maxim that was not universal at all. The adage repeated by the technicians echoes the "golden rule,” a maxim that has origins in ancient Egyptian culture (Wilson 1956), is espoused by most major religious groups, and is part of most major ethical traditions, though not necessarily pegged to a theistic one (Epstein 2010; Blackburn 2003). And while most of my informants probably did not know the etymology of the proverb that they cited, they all invoked it as a way of describing their ethical practices in the absence of a cross-organizational body of regulations and standards. Yet, much like the “golden rule,” respect as a guiding principle leaves room for interpretation by those who invoke it — leading to a lot of disparity in practice. So even as technicians, managers, researchers, and trainees associated with continuing medical education

(CME) were all cognizant of the requirements of treating cadavers carefully, their conception of *how* to act carefully and with *what* respect, entailed slight variations.

These participants varied particularly with regard to their views on what “proper” treatment entailed. Essentially, what respect meant varied according to the participant’s seniority and position in the organization. They conceptualized respect according to both individual expectations and organizational mandates; these organizational mandates also reflected where the individual was positioned in the organization’s hierarchy. For example, managers’ conception of respect had more to do with respect for laws, standards, and correct clinical comportment. Technicians, on the other hand, took more of their ideas of respect from preceding, preconceived, and embodied behaviors. Technicians who learned on the job practiced respect both according to how they were inculcated by senior technicians, and according to their personal views on how cadavers or body parts could and should be treated. While this might sound similar to the “coulds” and “shoulds” described by Berenice, the Whole Body Director at the Northern California body donation organization (see Chapter 2), an important distinction is that how managers and technicians could respond was mediated by institutional power. Below I will recount five experiences that reflect the organizational and hierarchical differences between workers according to their rank.

Managing Respect in the Body Donation Organization

Joel and I finally connected after a year of my sending emails to his organization. It took me four months of consistent emails with one of the coordinators in his office to get some traction with him, although he responded only to her, and it was only after being introduced by a friend, not by the coordinator, that he finally responded to my requests for an interview.

Joel told me he had become Director of the organization after the last Director (of over 30 years) had retired. Joel himself was a full time faculty member at the medical school, but helped run the organization because of its value to anatomy, science, and the research at the medical school. He seemed a bit short on time (no surprise given the length of time that it took to get in touch), but was open to my questions. He was not, however, expansive in his responses. During our conversation I asked him about the standards and rules that the organization abided by and he gave me broad responses about state and federal law, and reiterated that the "Anatomy Gifts Act" (the UAGA) was the main act that regulated much of what happens with bodies. In our discussion about what was meant by "what happens," he told me that he and the organization explain to users what working with bodies entail, that it requires practicing the golden rule or some form of empathetic reciprocity,

> We…emphasize that this is a very sensitive area, spiritual in many cases, and I don't know what to tell you…I think we go over it so that the students, the faculty, the TAs, and everyone will treat the donors during anatomy class as they might expect to be treated if they were in that situation…Yeah, that's what we emphasize, so in other words, they're not to be in any way disrespectful, and so that's the principle. I mean, it's pretty much common sense.

Joel's comments imply that the golden rule is universal, and more than that, that respect is widely understood by everyone, no matter their background. I did not probe him about what common sense meant to him, instead I asked what *in*appropriate behavior would look like. He replied "I think you can imagine…That's all I'll say." And gleaning from the few details that he could offer on what disrespect or inappropriate behavior looked like, it seemed that relying on the common sense maxim of treating the cadaver as they, the user, would like to be treated, did leave a lot to the imagination.

While it seemed that Joel was obfuscating the question by declining to comment, in the interest of potentially protecting his organization from any misrepresentation of his words, it also seemed that not talking about cadavers was for him a way of demonstrating respect. Moreover, his remarks made clear that his understanding of respect involved different approaches, depending whether he considered the matter in his role as the head of the organization, or in his role as a faculty member.

Joel did explain what unethical behavior with cadavers entailed. One way in which respect was demonstrated was in respect for the tradition of donation -- and respect for the tradition of donation entailed keeping the gift outside the sphere of commodities. This discomfort with mixing the two was not unique to Joel, as many scholars and studies have shown that there exists both a porous boundary among gift and commodity, and negative public reactions when these indeterminate zones are pointed out (Shaw and Bell 2015; Klaus Hoeyer 2007; Brown and Williams 2015; Parry 2012, 2008; Cathy Waldby and Mitchell 2006; V. Zelizer 1996). However, Joel described the process by which technicians check in with course directors, whether in the medical school or in other health science programs in the university, as,

> "mak[ing] sure everyone who's going to be in charge of that course, directing that course, an educator, is aware of the responsibilities…you know, they can't take that individual and sell it to a private organization or to a company that might be interested in studying human bodies and things like that. So there are policies like that that are…but again, they are based on the policies that are in the Anatomical Gift [Act], the State and Federal laws."

My conversation with Joel helped me understand what directors or managers of body donation organizations might be thinking, but it also seemed restrained. Given Joel's gatekeeping power and my position as an academic with insider knowledge, but still an outside researcher, it is understandable that his responses were short and nonspecific. Joel had to protect his organization, he also had to protect the privacy of the donors to his organization. Even if I was not asking questions about particular individuals, nor would I be privy to information about a particular person, Joel's forms of respect were deeply tied to control (of information, of bodies), privacy, and keeping anonymity for donors. Joel's descriptions of respect, calling it "common sense," implied that as a visitor, as an observer, or even as a user, one should know respect (or lack of it) when one sees it, but I needed details to understand what was respectful and what was not respectful with bodies. It was also interesting that he invoked common sense, since most in medicine would point out that the whole situation of working with cadavers is so uncommon. To better understand what counted as respect for bodies, I turned to my conversation with the manager of another body donation organization, the Whole Body Program in Northern California.

Alex was the manager of the Northern California Whole Body Program. Much of our interaction has been chronicled already (see Chapter 2), but his comments on what sort of treatment they promised donors relied on a promise of respect. The Program implemented this not only by vetting lab users but by detailing what cannot be done with the cadavers. Alex called users "requesters," as in the people who would request tissue from the Whole Body Program.

> We require that our requesters not allow students say to take pictures, and that's a big deal these days because you can take a picture anytime, and then you can put it anywhere. And so it's making sure that students having signs that say 'No Photographs'…our perspective is that if you take a picture, if you pose with a cadaver, if you make the cadaver do something funny or do anything that either pokes fun or is humorous, or is gross or gory or whatever, that is detracting from…that is disrespectful in sort of a fundamental way. And that person would not be doing that with that cadaver if that cadaver were that person's mother or father, and that person would not want anyone else to do that if their mother or father were a cadaver someplace else, or themselves, right. Yeah, so for us it's making sure that those types of rules are followed, that there are introductions given to the students about where these cadavers are from, not specifically…we're not so concerned that they say they're from the [Northern California] program, but that these are people who have willingly donated their bodies to help you learn, and this was important to them, and therefore should be important to you, and that you are expected to treat that gift with respect.

Alex highlighted a central tension in the treatment of cadavers. He gave specific examples of *what not* to do but the standard for *why* it was wrong was left unexpressed. Issuing a call for empathy to think of the cadaver as a "person's mother or father" resonated with the golden rule adage, but it did little to explain what thinking of the cadaver as your mother or father might spur you to do—or not do. And although Alex emphasized that students/users were not allowed to take pictures, the reasoning behind this was that taking pictures of the cadaver *while* posing with it was disrespectful; it would not respect the choice of the donor to be used for research and training, what was promised during donation. Calling this behavior “fundamental,” Alex continued to rely on nonspecific language, much like Joel and others in management.

Using typical body donation organization rhetoric, Alex employed the language of “the gift,” of donation, and spoke of what giving one’s body to others should entail. While Alex (unlike Joel) provided sobering details on what (mis)treating bodies meant, it seemed to be constricted to the realm of evidence. If students or users could not take photos of themselves with the cadavers posed in funny circumstances, did that mean you could do it if you weren’t photographing yourself? Probably not. Did it mean you could photograph yourself absent the cadavers? Probably not either.

Like Joel, Alex was concerned about what others might see, and he was concerned with perception and control. Alex’s rank and responsibilities meant that he had to control how folks outside of the organization saw body donation and the uses to which donors were put. Similar to the discussion about what can be seen with regards to body donation, Alex was exerting control over the image of the Whole Body Program and donation more broadly. Not photographing the cadaver was similar to locking the door to the body donation organization’s office, not associating with gory history, and not being perceived as a butcher or macabre (see Chapter 2).

What seemed to be missing in Joel and Alex’s descriptions of what respect looks like was the acknowledgment that most cadavers go not to anatomy labs to be used by students, but to CME research and training labs to be used by researchers and medical providers. Additionally, the constant focus on anatomy students and whole body classes obscures what people, i.e. the general public, might find more unseemly about donation. Perhaps the idea that one’s body will be used to train medical students is more appealing than the prospect that it will be disarticulated and sent around to different places for research and training. Joel and Alex kept coming back to the idea of respect among students, and referring to that as if it were the main use of cadaveric material – but it isn't. Asking students, TAs, and faculty to not take photos is one thing, but controlling the actions of healthcare researchers and professionals with more status, power, and less time than they themselves was quite another. The leverage that Joel and Alex could exercise in CME research and training was far less than with anatomy labs and new healthcare students (Hafferty 1991; Lam 2007).

Managing Respect in the CME Lab

Ray was the manager of the Northern California CME Lab. A brawny, mountain climber of East Asian heritage, Ray had been working at the Lab for five years when we spoke and had been a coordinator previous to his current position and a technician previous to that. Having climbed through most of the rungs of the ladder in the organization, Ray's background reflected the understandings of a technician's day-to-day work as well as the responsibilities of management, including more client-facing and bureaucratic work. As a technician he and I had worked together. He had come from a more technical background as a science and architecture major. He was analytical and had a knack for building processes, with an interest in efficiency. When we sat down to talk about what treatment he expected cadavers to experience in the lab, he started off by addressing the first issue he saw in the lab,

> I think the biggest concern is always looking at the donor first and foremost. I mean, like trying to be humane. And the reason why is because if I were to donate my body to science or to the [Whole Body Program], or whoever, I would hope that it's dealt with in the most respectful way possible. And there have been instances where we've heard certain things said by certain individuals outside of our organization, outside of us… people who have used our lab have described the cadavers in very disconcerting ways. 'Oh, my god, this specimen is disgusting…' or 'this thing smells like…' Where I would never want someone to remark that way about myself, if I were to be donating it to them, right?

Expressing the golden rule, or a variation of it, Ray described that the cadaver body needed to be seen as a donor "first and foremost." He explains that if he were to donate (note the "if") he would want his body treated in the most respectful way possible, that would mean not speaking ill of the body or about him. And here Ray means not that remarking about the condition of the cadaver is the problem, because the dead body and the decomposition process is not a sight for sore eyes, but that the words employed to remark such a surprise or response were the problem. What he saw as the problem was words that devalued the cadaver into a "thing" or vocalized its disgustingness. This is curious given that other authors have noted that laughter can be used as an escape valve for the grotesque and morbid work that is interacting with the dead (Hoeyer and Jensen 2013; Olejaz 2017), for Ray laughter at the cadaver, regardless of it being true (dead bodies and body parts can be disgusting and smell bad) was disrespectful. It also seemed odd, since a certain amount of gallows humor was accepted and practiced in the time that I was present as employee and as researcher. More so it was odd, because absent of a public avenue through which to express grief, humor is the next best alternative.

Lesley Sharp (2019) notes that "grief, strangely, remains widely unrecognized and elusive as an inevitable and significant aspect of experimental laboratory life" (2019, 237). While she was talking about animal research labs, the culture of those laboratories extends to the CME training and research labs I observed. There is no consciously carved out space in which technicians or others can demonstrate grief over working with the dead. Instead, if grief exists it is usually pushed to the margins or made private. This can be an issue, writes Sharp, because "when institutionalized practices exile grief to private realms of experience, this can provoke shame, exacerbate social isolation, and deplete one's sense of self-worth" (2019, 237). But Sharp notes that small memorial practices "materialize regularly in lab contexts" (2019, 237). I see humor among technicians as a form of memorial, not for the individual themselves, but for the entire occupation. Humor acts as an escape valve for tension, but also as an opportunity to express emotion, whether tied to grief or exasperation. Additionally, it was something the lab staff shared with each other. Rather than display grief, they displayed a sense of solidarity in their collective situation.

Returning to Ray's comments on humor, he mentions that the individuals were "outside of our organization, outside of us" to clearly demarcate those whose humor is allowed and what intentions they bring into the lab. This is curious because Ray's binary reinforces a division, one that demarcates who is an insider and who is an outsider, proving that humor can be used to create stronger bonds *within* a group. In writing about gallows humor, bioethicist Katie Watson (2011) explains that laughter can be seen as a release and as connection. We release discomfort and anxious tension through laughter but also create connection since "humor serves the vital psychological and social function of confirming or cultivating intimacy, and establishing or reinforcing community" (2011, 40).

Perhaps Ray's discontent was directed at the power dynamic in the room. The outsiders and the insiders had different relationships to the cadaver and body parts. As technicians and lab staff, Ray was not at the top of the medical hierarchy; surgeons and residents using the space were. Perhaps what Ray saw in that moment was a power imbalance. For example, the "concept of 'joking up'—the idea that it's okay for the less powerful to make fun of more powerful individuals or groups, but the reverse (joking down) is not" (Watson 2011, 38), and what Ray was noticing was that the cadaver as lifeless and voiceless figure was being joked about, essentially, joked down on. This tracked with what Alex had mentioned, that the cadaver not be made fun of or used as the butt of the joke, ostensibly because of their voicelessness and lack of power in the "funny" situation.

Ray’s remark of treating the cadavers in a way that he would want to be treated in combination with his proscription on humor stood out in what he said next.

> “That's when I've had to step in and actually bring it to the attention of their manager or their supervisor, and then have that be something that is addressed with the rest of their unit. So that's happened a good number of times. I mean, there have been times where I've had to step in and be like ‘you need to respect this specimen.’”

Ray wanted users to respect the specimen, that is, not disparage the gift. And yet, addressing the cadaver body as a donor “first and foremost” then asking the visitors to the lab to “respect this specimen” highlights a number of issues. One, that the humanity of the cadaver body is appealed to when they see something that is not respectful, that is, when the treatment of a cadaver does not meet Ray’s personal standards for respect or treatment of his body—if he were on the table. Two, that this has happened a number of times, lab users descriptions or reactiions to cadaver bodies in a “disrespectful” way points to a different understanding of what respect for a cadaver is from user to user, since ostensibly these people might not find their comments about cadaver bodies disrespectful. Three, Ray referred to the cadaver body first as “looking at the donor” and then calls it a “specimen” when describing how he refers to it with others. There is a discrepancy in the humanness of the descriptions and the sense of urgency with which this is kept to. But again, this is not new. Having come through the lab as a technician, he too practiced the tactical objectification that other technicians used when working with cadavers, switching between seeing them as human and as object. It seems more a testament to his role as Manager and purveyor of an educational and research space than the actual purveyor of bodies that mediated this. He switched between seeing the body on the table as donor and person (gift) and usable good (commodity).

Ray reiterated, “All stems from, obviously, the empathy and the idea that you're putting yourself in their shoes and kind of thinking ‘if this were me, how would I want other people to respect me?'" An important aspect of this sentiment is that by practicing the golden rule maxim, Ray was also expressing his values and his sense of self in a position, in a space, that does not always allow for it. In an attempt to express a sense of empathy for another's situation, Ray's words became a vehicle to enact his sense of respect, of right and wrong, as far as treatment of bodies was concerned. These selfless actions were important, but continued to superimpose Ray's sense of justice as the steward of bodies on the donor more than it brought the actual donors' voices into his treatment or into way he imposed standards of use in his lab.

Interestingly, Ray also posed a second and third reason for acting as he did, invoking a new layer to the treatment of cadavers, and one that matched his position as he was more client-facing and bureaucratic.

> It also comes from a standpoint of the person who's going to be performing whatever they're performing, right? The surgery or the study or the procedure. To them it's to make it, so that *we* [emphasis mine] make it as professional as possible, so only exposing the area that they need to see. So obviously, covering up the rest of the cadaver if need be, if they're only working within a small 4-inch window. Because if you're going to do only a lumbar procedure, then you don't need to see the rest of the cadaver…Which brings us to the third point, when it's really also about not just being professional, but also mimicking as real an OR simulation as we can, or real case scenarios.

Ray called attention to the treatment of cadavers not for the benefit of the donor, nor even for benefit of himself on the table, but for the benefit of the user of the body. This does not mean the technician (because technicians are not assumed to be users, just stewards of cadaver bodies), rather it is the students, faculty, and industry representatives who use the lab space to learn. It is meant for the professionals who are using the cadaver bodies, not the technicians. This description problematizes respect. It subsumes a donor's needs into those of the user, making respect a multilayered practice because it is not singularly about respect for the donor's wishes, save that they will be used for "the betterment of science" as open-ended, vague, and intentionally undefined as that belief/practice is, but respect for the practice of medical education and research. It is reminiscent, in fact the entire project is, of the knowledge that "the body and its parts come entangled in a thoroughly interpenetrated web of substances and meanings that can never be fully disengaged and "purified" from one another" (Crowley-Matoka 2016, 189).

Ray continued,

> Presenting [the cadaveric body] in a way that is expected within any operating room across the whole U.S. is the idea, and we hold ourselves to the standard that we hope to be mimicking the best operating rooms, where there's a sense or order, there's a sense of cleanliness, and there's a sense of working like a well-oiled machine where you're only going to be operating in an area that you've requested, and we've provided you with a window to that area. Because everything else is superfluous you don't need to see it, and for that reason we will drape it and make sure that it's not visible.

Here again standards are conjured. Covering has been likened to detachment, which is sometimes necessary to conduct emotionally affecting work. What is curious about Ray's characterization of the "likeness" between what is happening in his lab and the OR is that he only mimics one small piece of the interaction between surgeon and patient, the actual surgery. Missing from his description, and conception of respect, is that respect is developed between surgeon and patient outside of the OR, through multiple interactions in the form of appointments, discussions of diagnoses, reviews of x-rays and tests, and preparations for surgery that lead to a relationship, which in turn leads to a sense of respect. Here again, the voice of the patient/donor/cadaveric body is subsumed, "draped," and represented by the needs of the user and CME. More than a demonstration of respect for an individual, Ray related a respect for professionalism that makes a person's (or the donor's) values and wants part of the profession, not separate from it.

This is similar to a phenomenon that Mette Svendsen et al. (2018) outline in their writings on substitution, that is, when healthcare practitioners "step into the subject positions of their charges in order to sustain their personhood and compensate for reduced capacities" (2018, 20). While Svendsen et al. outline ethnographic studies carried out in a NICU, a laboratory using piglets as stand-ins for neonates, and a dementia nursing home, their findings on substitution and substitution practices are useful in explaining what Ray and others pointed to in regards to respect for bodies. The authors' analyses highlight how "substitution practices redirect our attention from the question of *what it means* to be human to *what it takes* to turn premature infants, research piglets, and people with dementia into beings with worthy lives" (Svendsen et al. 2018, 20, *emphasis in original*).

Specifically, Svendsen et al.'s analysis on the use of piglets in a research laboratory helps explain what managers and technicians in CME promote as the importance of bodies for generating future knowledge, health, and wealth (Svendsen et al. 2018). Svendsen et al. write that tension exists with substitution practices, specifically "substituting for the pig by bearing responsibility for its personal well-being and by bearing responsibility for turning it into wealth and welfare for humans" (2018, 27). Closeness to the piglet reveals personal connections to the purpose of pig use in labs, to the connection between scientist and the greater good they see themselves a part of—Science. This good is an important focal point because it gives people a sense of purpose and meaning to their work. For the scientists Svendsen et al. profiled, the piglets' lives (and the relationships with them) are a small sacrifice for a greater good of generalizable knowledge. But perhaps what's most important in Svendsen et al.'s analysis for the purposes of substitution in cadaver work is that, "substitution also provides a window onto the relationality between caregivers producing futures for uncommon persons and constituting their own worth and future" (2018, 30). Substitution in CME are the practices that those rhetorical practices we have seen so far, of empathy and of the golden rule. Substitution works to bring worker closer to the purpose of their work, creating empathy but also connection to a greater purpose. This is an interesting point and one that I will explore further in the analysis of technicians where this is brought into the fore more personally, just as it was with Tim and Kenneth, with Gemma, and with Bill.

The managers' understandings of respect stand in contrast to technicians' conception of respect, which may stem from the same principle "to do unto others as they would like to be done to themselves," but show how rank and responsibility attenuate the relationship to bodies. Having more rank seems to diminish the connection to the body and increase the consciousness of institutions rules and reputation, while closeness to the cadaveric body (in daily interaction) surfaces the tensions inherent in CME and science.

Technicians' Feelings Become Unofficial Standards

As I sat in on more and more courses at the Northern California CME lab, I noticed that technicians made sure to change gauze pads, disposable sheets, and absorbent pads, mostly due to following an implicit protocol. This was not an explicit training, as technicians have noted (See Chapter 3), but a protocol learned "on the job." This was simply the way that the person teaching them had learned, and before them, and so and so on. It was habitus of cadaver treatment on display. As I have outlined before, the way that technicians know what to do in the lab is a byproduct of different practices and experiences. When I interrogated the practice of *why* technicians do it or *where* the practice comes from, technicians offered again the same refrain of the golden rule.

Having just finished describing the training she would give a new technician who would work on a maxillofacial course, Gemma began to describe the impetus behind her training technique.

> I just feel like if I was a head in a bag, I wouldn't want to be soaking in my own blood in the bag. And so we try to clean them up as if…I don't know what's a good explanation without making it sound like I didn't care. Like I try to clean it as if they are being presentable and like as if they're going to their funeral...So you don't give anybody the shock who's never seen a cadaver head before, to freak out and faint…we try to not make it so shocking, we try to keep it as normal as possible.

What can be normal about seeing a cadaver or a head on the table? For Gemma, the existence of the head in a clean position meant mitigating the shock of seeing a dead body (or a decapitated head) wholly. If it was clean, hidden, covered, and less "shocking" then it would inspire a level of familiarity and calm with the user. However, Gemma employed her own feelings of wanting to be clean of not "soaking in my own blood." Again, respect takes the form of not only the golden rule, but also of order. Echoed over and over, respect was both a personal cry for empathy and a call for order. Gemma spoke of a lack of blood and being presentable, like the presentation expected in a funeral. Entreating a suspension of the macabre, an ignorance of death, the preparations of a funeral home (which made sense even if Gemma had never herself been involved in mortuary work) were a fitting simile of the sanitized manner in which Gemma taught the techs what to do. It also showed the protection she showed for outsiders who were not socialized into the work. Respect was intimately connected to presentation, but also to her own values of normality and treatment. Gemma herself would talk about proper treatment as matter in place (Douglas 1966), as not having dirt or blood or any polluting matter in the way they handled the bodies. Respect was applying her values of order and presentation, superimposing her personality and likes onto the cadaver. It was therefore not coincidental that her golden rule involved substituting her own self/body for that of the cadaver. As the senior technician, however, she imbued those practices in the technicians that followed, like Miguel.

Miguel had started at the Northern California CME lab a few years after I had left. He had interned at the training lab as a high school student and had joined the part-time staff after he graduated. A large, stocky guy, with a dark tan but whose racial/ethnic background I did not know, Miguel worked at the lab while preparing to apply to the fire academy for training as a fire fighter. At the time of our conversation and my ethnographic study, he was completing his second week as a full-time technician. Since Michael had started as an intern (a volunteer status he shared with an annual cohort of other high school students) at the CME lab, he had observed a number of courses, he was exposed to clinical courses, he was taught anatomy in the lab, and he had spoken to a number of instructors and clinicians (and other technicians) before joining the staff. This exposure trained him to follow the example of other technicians, but also allowed him to see the academic use of the lab as separate from the commercial use of the lab, something he would comment on. This meant that he interacted with the space first as a student/volunteer before becoming a worker in it. He received training in anatomy, shadowed clinicians in the attached hospital, and worked on research projects in the training lab before having to set up cadavers, prep cadavers for courses, and attend to the visitors/users' needs. This culminated in two things: repeating a version of respect that was imbued in him by senior technicians (like Gemma) and also seeing a duality between educational and commercial use of the CME lab.

Miguel commented that respect has to do with how the body looks, that is "it has to do with the presentation part, too. Like personally, if I donated my body to science I wouldn't…okay, it is in a bag…but I wouldn't want it sitting in blood all day. I would like my body to be wiped off as crazy as that sounds." Invoking the same "matter in place" (Douglas 1966) principles that Gemma talked about, Miguel felt that "sitting in blood all day" was something that did not square with his views on respect. Miguel, like so many around him, placed himself in the cadaver's situation. He placed himself on that table and enacted those feelings onto the cadaver. Here we are reminded of the phenomenon of substitution and Miguel crafting "futures for uncommon persons and constituting [his] own worth and future" (Svendsen et al. 2018, 30).

Additionally, Miguel acknowledged the oddness of feeling that as a cadaver he would not want to be bloody. By describing this desire as “crazy,” he signaled the competing ideologies at work in the situation. He was working in a cadaver lab where bodies were being cut into, dissected, sawed, opened, and generally torn apart into bloody sites. His sense that it was “crazy” to have want to be clean pointed out the tension in the space and the work—the futility in keeping bodies orderly in a space that existed to have (and contain) the disorder. Miguel’s feeling that cleanliness was part of respecting the body stemmed not only from what he was explicitly taught, but also his observations that were made the natural conclusion. This was habitus in effect in the lab (see Chapter 3).

Miguel also saw the preciousness of the cadaver as linked to its complete use. The complete use of the cadaver meant using all parts of the body for as many courses, training and research alike, as could use it. It was also not a unique concept to Miguel, Ray and others in CME said the same thing. My conversation with Miguel continued,

Stephanie: And that's respectful…trying to use [cadaveric material] as much as possible?

Miguel: Yes. In my opinion, yes. Because I can also see the other side of… okay, well you're just destroying the specimen. I can't fathom it, but I can see other people like…"Oh, my god…you use it for everything? Like why don't you use it for one thing and not everything? Order another specimen!" But it's like…use as much as you can from this one specimen. If you're given a whole loaf of bread, you're going to eat the whole loaf of bread. You're going to save it for lunch, dinner, for the next days if you have to. And I think that's how the specimen…like how we view them…if we're given half a loaf, we're going to use that whole half a loaf for as long as we can. We're going to make it last as long as we can before we have to give it back…And I do look at [cadavers] like these are people that I don't know what their life was, but I know that no matter what their life was, I want their life to be useful. I don't want them to be non-useful.

Miguel’s comment recalls a folk story narrated by the writer Lewis Hyde (1983). I point out Hyde’s folk tale and his explanation because it reflects the metaphor Miguel employs and the literal process of what happens to donors: their bodies are used up and perish. Hyde’s tale is about the gift of bread by a mother to her daughters to accompany them on a journey. Each of three daughters receive a loaf of bread. The first two “squander” it by taking too much and not sharing it with creatures who ask for it. The third daughter splits it with creatures and is rewarded with warmth, a blessing, and the magical cures that the sisters did not get. The folk tale deals with the power of the gift and how a gift in motion, or circulating, in bits and pieces, needs to be used up. Hyde calls the gift “property that perishes” (1983, 8). Explaining further, Hyde writes “to say that the gift is used up, consumed and eaten sometimes means that it is truly destroyed as in these folk examples, but more simply and accurately it means that the gift “perishes *for the person who gives it away” (*Hyde 1983, 9*, emphasis in original)*. That is the point. Like the break, bodies as gifts are meant to be useful, used up, consumed whole. Body as gift, however, lives on in the form of an ongoing bond of gratitude and indebtedness that the gift created.

The anthropologist Maria Olejaz (2017) describes this same phenomenon in Danish anatomy labs. She calls attention to the supposed tension between respect and use, noting that “cutting bodies apart in the lab does not just take place in the name of science or pedagogy, but also entails a care for the deceased and an attention to their wishes for a postvital life. Students were keen on this idea as well, echoing the notion that showing respect meant making the most use of the cadaver as possible” (Olejaz 2017, 143). In explaining how people make sense of what cutting up bodies achieves, Olejaz argues that use isn’t objectifying, but a response of thanks to the gift of the donor. She motions to others who have similarly found that “efficient” use of cadavers was a way to pay respect to the donor (Sanner 1997) and that donation is a way to keep agency after death (Olejaz and Hoeyer 2016; R. Richardson and Hurwitz 1995; Bolt et al. 2010; Nordfalk et al. 2016). And yet, something is off. If donor wishes to be used are honored, does that mean that they want their *entire* body used in ways and in terms (contractual and linguistic) that they have no control over? One would assume so, given the contracts they signed willing their bodies away, but yet, the inconsistency and the language employed for this is strained.

The tension between body as gift and as commodity, and how respect interacts with those understandings, is an ongoing one. Miguel also pointed to this tension, another duality in how he saw respect for cadavers: commodity and gift as represented by individuals and their employment. Miguel noted,

> “There are times when I'm working and I'm like…god, these sales reps and surgeons come through here for business…like these bodies that were donated are being used for business. Someone's making money off of this. And in that aspect, I don't think there is much respect.”

Miguel’s comments are reiterated in much of the public’s response to discovering that donated, or gifted, material is used for profit. When asked about their opinions on the use of cadaveric bodies for educational or research profit making, much of the responses individuals not associated with medicine or health sciences issue are surprise and opprobrium, yet with little recourse for action (Grow and Shiffman 2017).

In a 2017 investigation on whole body donation, Reuters reported on a number of facts that while new were not surprising to those in the CME industry. Mainly, it reported that the major cadaveric body providers in the U.S. were for-profit organizations. Reuters profiled Science Care as one of the major “brokers” in their investigation. Through their reporting they identified Science Care as one of the 34 body donation organizations and noted that “although the company’s donor consent forms state that ‘Science Care is a for-profit company,’ they do not explicitly disclose that bodies or parts will be sold” (Shiffman and Grow 2017a). Reuters also reported on donor families expressing shock and horror at learning that their loved one’s body had been donated to a company that was “selling” it. Echoing Miguel’s discomfort with the use of bodies by business, one family member in the Reuters investigation characterized it as “gains off of someone’s charity” (Shiffman and Grow 2017a). And yet, the contracts were signed and the profits made. The family had little recourse except to express dismay.

Catherine Waldby and Robert Mitchell (2006) in their seminal book, *Tissue Economies*, explore how human tissue enters a capitalist market by transforming into commodities. Waldby and Mitchell explore the different and varied systems by which human tissues travel in large, complex, global markets where everything from blood to cell lines to umbilical cords are traded because their use-value is greater than their moral worth. Moreover, these scholars show, through an intricate analysis, how the political economies behind these tissues shape how and what we think of donation, extraction, and commerce of the human. Waldby and Mitchell argue that market and gift-economies (donation) do not operate in rigid bounded spheres, they "bleed" into each other (2006). Noting how entwined the market and the gift economy are, they argue that tissues enter the market when these become waste, when they lose ontological significance. These tissues are sent for use by institutions that take on a "surrogate property contract" (2006, 85). This waste is a positive source of value, as it becomes a third space for tissue in the commodity/donation relationship. This is a useful way of approaching how human tissue transforms, how it becomes commodified, and how people react. Notably, Waldby and Mitchell question the ethicality of profit, but do not resolve the argument.

In a similar vein, Anthropologist Klaus Hoeyer (2009) examines the formulation of markets around bone and discarded prosthetic devices. Hoeyer notes how bones and prostheses from cadavers live in a grey zone because these are thought to be part of the "inalienable human body," and yet after death and most certainly after cremation, are separated from the body (Hoeyer 2009). Hoeyer argues that bones or prostheses exist in a liminal space between body part and discard-able good. First, bones are considered part of the human and we, as donors or as people with certain moral inclinations, do not want others to profit off of them (Hoeyer 2009). The bone however is a waste, a by-product of a surgical procedure removed for a technical counterpart (a prosthesis). Working off the same "waste as positive" notion as Waldby and Mitchell (2006), Hoeyer elaborated how people are happy to part with that which no longer has use to them, but they do not want another profiting from their "waste" (Hoeyer 2009). A reasonable administrative fee to cover expenses can be in place for salvaging bone matter and prostheses, but not anything that could lead to profit. Here in lies the tension again. As the public, as donors, and even as technicians, people do not want to see that which is freely given, that which was once part of the body, indeed "inalienable" to the body, even that which is waste, used for another's gain. Charity after all should be used for a public good, not private benefit.

Miguel touched on this aspect on the gift-commodity divide, on respect, and on good treatment all together. Miguel elaborated on the definition and practice of respect,

> "when we crack personal jokes in there…I just feel like the whole respect part…like this is a person…like you should treat this person as if they were alive, awake, looking at you right now. I think [the reps] take the cadavers for granted, because if these people never did donate their body, none of this would ever exist, type of thing. And I feel like a lot of times these reps take that for granted…like you have this job because this person donated this, and I don't think they're giving the cadaver that type of respect. I mean, even now, talking about it, the fact that I do call them a specimen or cadaver, it's like…maybe I should use a donor. Because I feel there's more emotion to it."

There are a number of things that Miguel is trying to convey at once. First, he invokes the discomfort with humor, at least not being completely serious vis-à-vis the cadavers. Second, he invokes the humanity of the cadaver and it needing to be treated as if alive and "awake." Third, he invokes the disappointment at others not appreciating the gift of the body. And fourth, Miguel invokes the personal unease with the terminology used in the CME training lab.

For the first three responses, Miguel echoed the tensions that other technicians and he had brought up with regards to proper treatment or behavior with cadavers. Users should be more careful not to joke about the cadavers or using the cadavers for humor. Users should also treat the cadaver as if it were alive, as if it were watching them, as if it were them. Users should appreciate that the donor gifted their body so that they could have this opportunity, this job, and demonstrate that. But again, the specifics of how this should or should not be done are difficult to place. If no personal jokes or humor, then what topics of conversation were appropriate and respectful? If the cadaver were alive, what would respectful treatment of a live person be? And lastly, how should users demonstrate an appreciation of the cadaver? Should they thank the cadaver at the beginning of each course? It was only in the fourth response that Miguel gave a direct alternative. If the terms specimen or cadaver were not respectful enough for bodies, then maybe donor would be more appropriate.

In fact, emotion is a key in thinking about respect with bodies and how technicians make sense of the work they do. In the previous chapters we saw technicians express their fears over perception of their work (see Chapter 2), and we also saw frustrations and confusion over closeness and distance to bodies, what knowledge they were supposed to gain from their work (see Chapter 3). But emotions allowed technicians to express values, to express their sense of self. More so than a reflection of what bodies were supposed to be, emotions or emotional language was a way of demonstrating personality in a space that did not make room for it, nor encourage it. While the rhetoric of respect, of good care, of gifts were freely traded and encouraged, the ability to demonstrate that was left entirely to the technicians.

One way to analyze this is to return to the concept of relational work because relations and emotions cannot be absent of work. As economic sociologist Viviana Zelizer has shown us, relationships emerge in even the most professional places where emotions are not the focus of the work, but efficiency. When workers develop intimacy at work it threatens loyalty to the company or the business since workers develop attachments to others not to the organization (Zelizer 2011). But not developing attachments at work seems bizarre in a social setting. Instead, Zelizer asks us to flip our object of study not simply on the people involved in the relations, but onto the economic activity itself. She pushes us to examine relational work in economic activity because this “provides analytical tools for analyzing the constitution of economic transactions” (Zelizer 2012).

Arlie Hochschild (2017) expands on this by providing a name to the feelings that emerge in that relational work, what she calls “feeling rules” those are “feelings rules are the feelings we apply to feeling itself—our own feelings and the feelings of others” (2017, 162). Feeling rules are those that “apply to *what* we should feel (nostalgic, elated, anxious, indignant, for example) and *how much* we believe we should feel (how emotionally attached or detached we should feel toward an object of our attention)” (Hochschild 2017, 162, emphasis in original). This is an important concept as it helps frame what technicians, and here Miguel, expressed should be happening. Miguel expressed that there should be something felt, an emotion to the body, perhaps caring or gratitude, definitely respect, and that will be done through a different word choice. But it is also connected to the job, to relations between the work Miguel did and the body, and the work that Miguel is supposed to feel for a gift of a human body, from a donor, not for an object that can be bought, sold, or disposed.

Feeling for the Object Once Known as a Person

Lewis Hyde has an explanation for the gift-commodity tension. That when gifts or goods are transformed into commodities, they become “like bread made with chemicals to keep it from perishing” (Hyde 1983, 10). Explaining that in commodity exchange, “there is neither motion nor emotion because the whole point is to keep the balance, to make sure the exchange itself doesn’t consume anything or involve one person with another. Consumer goods are consumed by their owners, not by their exchange” (Hyde 1983, 10). With gifts, there is reciprocity, connection, and a “debt” so to speak. In commodities it is a “clean” exchange of goods and money. There is no bond made, no reciprocity, and no connection. In commodity exchange, you can throw away the commodity purchased with abandon. The same is not true in gift exchange.

Like the policies that drive a valuation of fetal remains post-abortion (L. M. Mitchell 2016), cadaveric remains are being claimed and given a host of social values. No longer the unclaimed (or worse, "snatched") bodies of the forgotten, people and organizations have developed policies to give the remains of those used in science a visible status. However, this visibility is mediated. While the act of donation is visibly praised, the people who do it, the actual named individuals who do it are couched into a category of "donor," without any special or unique recognition of their body/gift.

Lesley Sharp noted how this happens within organ donation for transplantation. Sharp described a duality when analyzing the way in which donors in organ donation are valued. They are simultaneously praised for their donation while also being rendered a medical unit, or rather, categorized into medical objects. According to Sharp, what happens is "a greening of the body…that foregrounds the goodness associated with donation while simultaneously denying transplantation's more disturbing reliance on death and organ retrieval" (Sharp 2001, 120). While CME users are not using natural, green language to do this abstraction, they are relying on the goodness of donation, of science, of death not occurring.

Like the general US public, the CME industry and users have a discomfort with speaking about the process of death. Managers, technicians and CME users would rather substitute safe and neutral sounding practices, like "treating the body with respect" or wrapping the body in clean sheets or plastics, or keeping the body clean of bodily fluids, or memorializing the body through some mass memorial or note of gratitude than to thank *by name* the individual who donated. Sharp offers "greening" as an explanation of how this veiling process is done, noting that "through greens imagery, organs assume an enigmatic character, becoming mystical, fetishized objects whose use transcends their original purpose and most certainly obscures their origins" (Lesley A. Sharp 2001, 122). And while CME users do not employ green imagery (that of nature), they do employ altruistic language that acts in the same way: to soothe and abstract.

Waste by Any Other Name

Regardless of the language of exceptionality used to commemorate bodies, they end up, with few exceptions, incinerated like other medical waste.[13] Here lies the tension between what is a treated with respect and what must be disposed of.

Writing about a Canadian context, Lisa Mitchell explains that fetal remains after abortions were made visible (or invisible) by a series of practices, or "out of social and interpretive acts, out of practices, ideas, and engagement with objects" (L. M. Mitchell 2016, 169). Fetal bodies were not always visible to mothers, since they were considered medical waste, and were discarded by medical staff after the abortion procedure. In the last twenty years, professional guidelines have changed and encourage contact with the remains after pregnancy loss, rather than quick disposal as medical waste (although that is still an option). Mitchell argues that the practices that frame the visibility of some remains while obscuring other remains, are mediated by the type of procedure used for the abortion (L. M. Mitchell 2016). Similarly, for cadaveric bodies their visibility, as ashes or memorials, is mediated by the use/users of the

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[13] In Uniform Anatomical Gift, Ca. Health and Safety Code, Chapter 3.5 (Cal. Stat. 2007) the statute reads ": (c) Residual anatomical materials and human remains donated to hospitals, organ procurement organizations, accredited medical schools, dental schools, colleges, or universities for educational, research, transplantation, or therapeutic use that are no longer useful or needed for those purposes, **may be disposed of by those entities through cremation, in the same manner as medical waste,** and without additional burial permit requirements if the donor has specifically waived subdivision (b) of Section 7151.40."

bodies. A majority of organizations promise that remains will be cremated and returned if not in use, but the amount and time and follow through of the cremation is determined by the use/users of the body. Ultimately, the remains may or may never be visible to the families ever again.

Mitchell notes (2016), much of the policies, formal and informal, around cadaveric treatment through and at the end of a cadaver's life cycle are driven by intuition and common sense. That is, they are driven by individual understandings and motivations of what is the best "care." Care principles were driven more by individual and collective mores, than they were by a professionally mandated set of rules. Cadaveric bodies heading towards disposal, like fetal bodies as waste, are categorized not as individual bodies or even the individual wants of the family, but as an anonymized, medical object whose treatment is not inspired by the wishes of the donors or the families, but the intuition of the users.

It is important to note that the responsibilities, or rather the practices of respect, that both managers and technicians outlined do not follow the treatment or practices associated with a gift. Tracking, maintaining paperwork, keeping the gift anonymous, and controlling the recognition of "gifts" is not typical treatment of gifts. Instead what's demonstrated is an understanding of the cadaveric body as object and subject, as commodity and yet, in small glimpses throughout use and disposal, as treasured gift. Gifts have weight. Gifts have meaning. Gifts engender sociality and reciprocity (Mauss 2000). And we must remember that the "body and its parts come entangled in a thoroughly interpenetrated web of substances and meanings that can never be fully disengaged and 'purified' from one another" (Crowley-Matoka 2016, 189). But not all gifts are treated equally and not all gifts are returned.

The Body Is the Gift

Stephanie: What would be…offensive to you as far as seeing something done to the tissue?

Research tech: Yeah, I guess the biggest thing is since these spines are being donated and we have to respect that…we have to respect the spine and make sure that what we're doing from the spine is good research that's going to actually benefit people. You know, pay it forward, basically.

A cardinal property of the gift is that: *the gift must always move.* Gifts on their own or the act of giving is always moving either in a reciprocal manner or in a circuit, engaging and incorporating people through and because of these given objects. Gift, as both noun and verb, means object but also a promissory contract between giver and receiver.

The gift must be consumed, used up, ended (Hyde 1983). In gift exchange the transaction itself consumes the object. Consumer goods are consumed by their owners, not by their exchange (Hyde 1983, 9–10). Hyde gives a number of examples to help explain this destruction, in contrast to possession, including Malinowski's writings on the Kula among the Massim in eastern New Guinea. In the Kula, reciprocity and movement play a central role in the exchange. Hyde quotes Malinowski when describing possession as "a man who owns a thing is naturally expected to share it, to distribute it, to be its trustee and dispenser" (Hyde 1983, 15). Malinowski described the Trobriander belief that to own something meant to give it away, to keep it in circulation, not to expect that gift or even something of "equal" worth back, but surely to expect something.

In applying this logic to bodies, the growing conversation among donation circles and the alternative burial movement is to expect the body to return not simply to the ground, but to an assortment of other uses: to blood, bone marrow, and organ donation (Lesley A. Sharp 2000, 2001; Lesley Alexandra Sharp 2006; M. M. Lock 2002; Cathy Waldby and Mitchell 2006; Cooper and Waldby 2014; Catherine Waldby et al. 2013; Scheper-Hughes and Wacquant 2002; Scheper-Hughes 2001; Scheper-Hughes 2000; Scheper-Hughes 2002), and even to fertilizing toxin eating mushrooms (Lee 2011), lighting bridges (DeathLAB n.d.), and lining artificial reefs

(Eternal Reefs n.d.). In essence, to make use of the body. Logically, whole body donation would be added to this list of "useful" ends.

Bodies are also enmeshed in the conversation of "useful." They are gifts that need to be destroyed (and are). Miguel claimed that the most respectful use of the body was for it to be used completely. This sentiment was echoed by other technicians, in both training and research labs as well as in body donation organizations.

Users and technicians speak about respect constantly, but their actions are more connected to responsibilities. As Joel described, respectful treatment is keeping to the responsibilities entrusted to the body donation organizations over lawful use of cadavers. Those responsibilities are transferred down, or in the very least expected to be followed. Regulation of these responsibilities is done on trust and the use and disposal of bodies is carried out via subjective reasoning over how and what each user should do with a body. Hence the disconnect over what managerial staff say is happening and what technicians are actually carrying out. And yes, there is a connection. The regulatory level, more formal standards are being held: bodies are not being sold, bodies are being tracked, the paperwork is being kept in order.

Throughout the course of my fieldwork and research I constantly heard and read that "the utmost respect" was used. That respect was necessary and "first and foremost"; that of course, bodies were always treated with respect. As I dug deeper into the *how* of respect, various responses surfaced. Respect was something you saw, as in "you know it when you see it." Respect was something that was done, you treat a cadaver with respect by not talking about them in a "disparaging way." Respect was not doing something, selling body parts, for example. Respect was, ill-defined. And that was the point.

Janelle Taylor (2018) writes that in the global health world, the term “partnership” has a “capacity to encompass widely divergent and incompatible understandings” which creates “mutual misunderstandings” (2018) that are crucial in bringing diverse peoples, from across the globe and socioeconomic strata to work on a complex issue. Taylor characterizes the term “partnership” as a boundary object because even as ambiguous and variously defined as the term is, it brings together people to produce a “thing,” in this case a global health project. In practice, the “mutual misunderstanding is critical to how the whole system works” (Taylor 2018). She writes that these incompatibilities in what partners *do*, or what a partnership *is,* or what they all *think* each one does and is, allow for the production of a system of global health research, or of health care services, or of organ transplantation. Taking “a practice-oriented analytical approach,” can reveal the myriad actions taken and meanings made under the banner of the term “partnership.” Analyzed as boundary object, the term presents useful understandings of what is imagined and what actually gets done among differently positioned people. These are all important applications and are significant to the work with cadavers in CME training and research and the term/concept of respect.

Applying the concept of a boundary object, as well as the mutual misunderstandings that they are based on, is a useful lens for understanding the work that “respect” as a term and as a practice creates in the body donation organizations, and the research and training labs where bodies end up. First it is important to define what a boundary object is. According to Star and Griesemer’s characterization,

> “Boundary objects are objects which are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use. They may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable, a means of translation. The creation and management of boundary objects is key in developing and maintaining coherence across intersecting social worlds.” (Star and Griesemer 1989, 393)

If the boundary object is supposed to be plastic enough to adapt to local use and understanding but defined enough to include commonalities among multiple people, then respect was that. What it also means was that respect was a term that was used loosely to characterize a relationship that was important and that had worth. Respect is particularly salient for those actors or "those involved in areas where knowledge is not yet stabilised [to]come up against the need to reconcile different meanings given to objects upon which they are attempting to reach agreement" (Trompette and Vinck 2009).

Overall, however, respect was mediated by the knowledge that the body was at both times a gift and a commodity. Hence the body as gift was never just a gift because it was earning monetary value. And Hyde reminds us that a distinction exists because "capital earns profit and the sale of a commodity turns a profit, but gifts that remain gifts do not earn profit, they give increase. The distinction lies in what we might call the vector of the increase: in gift exchange it, the increase, stays in motion and follows the object, while in commodity exchange it stays behind as profit. (These two alternatives are also known as positive and negative reciprocity.)" (Hyde 1983, 37). And finally,

> "We are indentured to our gifts until they come to term…our servitude is ended by the act of gratitude which accomplishes the transformation…it is true that when a gift enhances our life, or even saves it, gratitude will bind us to the donor. Until it is expressed, that is. Gratitude, acted upon or simply spoken, released the gift and lightens the obligations of affection between lovers, family, and comrades." (Hyde 1983, 70)

Hyde describes the clash between gifting and private property, or the clash between socialist "giving" principles and capitalist tendencies, as "a person whose instinct is to remove property from circulation, to put it in a warehouse or museum (or more to the point for capitalism, to lay it aside to be used for production)" (Hyde 1983, 4). Hyde continues by describing Indigenous groups distinguishing between gifts and capital. In describing Native people's practices, Hyde states that "one man's gift must not be another man's capital" a feeling that permeates current understandings of gifting, donations, and use of public goods for personal gain (Hyde 1983, 4).

As applied to the gift of the body, or willing one's body to science, much like gifting one's organs to save a life ("the gift of life"), the body must be used, consumed, or put to use for a beneficial end: science. This is seen in the way that Miguel described his idea of respect (or lack of it) and the public outrage and moral opprobrium (Hoeyer 2009) of using a body that is considered a gift to enrich another (business, organization, private scientific enterprise). It also delineates the moral boundary between science and marketplace, one that is supposed to be clearly separated (because of their mission ends), but are fundamentally intertwined.

Expanding Understandings and Applications of Respect

The golden rule principle seemed to be known by many but practiced differently by all. This could be in part because of the recent (as of 40 years ago) bioethics tradition within biomedicine (Beauchamp 1979). Bioethics has four principles: respect for autonomy, nonmaleficence, beneficence, and justice. The principles are not meant to be presented in a hierarchical order, rather they should all be attended to if the case at hand demands. The first, respect for autonomy, states that the patient should regarded as acting with attention and their agency respected (McCormick 2013). The second, nonmaleficence, states that the health practitioner will not harm a patient either intentionally or by omission. This might be the most well-known of the principles as it is often attributed to Hippocratic oath of "do no harm." The third, beneficence, might be the most commonly known principles of biomedicine, to "provide benefit to the patient, as well as to take positive steps to prevent and to remove harm from the patient" (McCormick 2013). The fourth principle, justice, states that practitioners will work towards fairness including the fair distribution of resources. These principles are not explicitly taught to workers in CME, but given research and practice with human subjects, students and faculty (and ostensibly the technicians) will have had exposure to these principles by training in health sciences and by proximity to clinical work or in the very least in lay understandings of "do no harm" conversation. Many people, managers mostly, spoke of ethical treatment of cadavers, but again, this was tied to the catch-all of respect.

What my ethnographic work pushes us to think about, and namely, what this dive into conceptions of respect demonstrates, is that in a clinical realm disposal, waste, and respect over donated goods and acts of altruism are independently crafted and come not from evidence-based practices, but from expectations of self. People want to do good by others and by themselves and contribute to doing good. By using terms as respect without any definition or set of standards, the concept of respect allows many to feel good about the use of bodies, but have little understanding over the ultimate end of bodies. This is where science comes in.

Rather than being incidental to the enterprise of science, the concepts of respect and reciprocity are how the system of science keeps happening. It is a politer gloss that makes people feel better. Respect and reciprocity, or at least the rhetoric of "the gift" helps the enterprise be able to continue and be able to be profitable. Much like the managers bureaucratic and sanitized language of respect, much like the technicians' veiling of heads on a table, glossing over the particularities of the process of science allows for it to continue. Calling donation "a meaningful act," promising that the body will be taken care of with "utmost respect" and how and when it is ultimately disposed, helps people keep doing it. People are current donors, potential donors, technicians, managers, residents, medical faculty, body donation organization staff, researchers, medical device representatives, and the public. Everyone has a stake in it, and being assured that the gift had a meaningful use and a respectful end encourages all to be okay with continued engagement in this practice of cadaver use in CME.

This is why the lens of the boundary object is useful in analyzing not only practices of respect, but what they help achieve. For Star and Griesemer the use of the boundary object allowed them to analyze scientific work which is “heterogeneous, requiring many different actors and viewpoints. It also requires cooperation. The two create tension between divergent viewpoints and the need for generalizable findings” (Star and Griesemer 1989, 387). Ultimately, what is done in a history museum, or in a lab, or in a donation organization is the preparation of bodies. Some of these bodies are lifeless and others are professionals in training, Rachel Prentice (2013) called them “bodies in formation.” All these products are achieved through science or work in science. Cadavers, professionals, CME research and training, whole body donation all aid in the creation of science and we as a public all benefit from the production of better trained individuals. What we do not understand however, is that these worlds require organizing, consensus, and slight ignorance.

The interesting contradiction in this is that science is a profit generating enterprise. The entire scientific engine is comprised of research and development that operates on the production of money through the extraction of not just intellectual labor but manual labor as well. This dissertation’s research demonstrates that. And even the manual laborers caught in the scientific enterprise are also caught in the paradox. While they want to work for a public good, that which is science, medical education, scientific research, because they work for a public entity (all the technicians and managers I interviewed were part of public, nonprofit generating, academic institutions) they don’t see their *paid* labor, intellect, and struggles as part of the profit generation. The false binary between public and private entities exists here.

Chapter Five: Conclusion

The boundaries which divide Life from Death are at best shadowy and vague. Who shall say where the one ends, and where the other begins?

—Edgar Allan Poe, The Premature Burial, 1850

The human body is a fundamental tool in medical education; each year, a steady stream of bodies is used to teach a new class of graduates. It is also the object of medical care. This duality complicates how bodies are treated and envisioned in biomedicine. They are at once a living object that requires treatment and care and also an inanimate object that require dissection, exploration, and acts of violence. Only in specialized spaces do we see this second type of treatment as acceptable and as an end to the good treatment and care. Bodies are made expendable and disposed of in this unique space. The transformation of the cadaver body does not happen outside of political economic influences. As Browdyn Parry notes, this transformation causes us to question how donated cadaveric bodies, or human tissue more generally, has the power to become and also what it can reflect,

> "While bone and tissue are initially gifted to the bank in an unprocessed state – as a tissue biopsy or bone segment – it soon becomes subject to processes of artifactualization and technologization, broadening the constituencies of individuals and organizations claiming rights of property in them. Their very technicity acts to destabilize the tight underpinnings of the foundational argument that it is immoral to commodify "the body," legitimating scientists' (but not donors') rights to "own" and "trade" the artifacts they are considered to have "manufactured." As donors, taxpayers, purchasers of operations, and consumers of these treatments, we all find ourselves inexorably drawn into the globally extensive web of bodily commodification albeit with varying effects and outcomes." (Parry 2012, 223)

This dissertation is composed mainly of observations I made and events shared with me from the interviews and conversations I had with staff, mainly technicians, working as part of continuing medical education (CME) training and research. They portray the rarely seen, backstage of innovative medical research and education for clinicians. What these scenes demonstrate is the very real, intentional, often morbid but always caring work of using cadaveric material. Throughout this writing, I have offered my readers the opportunity to see into a biomedical staple, use of human bodies, and to dissect the practices that support and keep this mainstay hidden. By highlighting the ways in which personal values and actions lead to care practices in labor with cadaveric bodies, I suggest that the everyday practices are much more creative and particular to the person working with cadaveric bodies than any prescribed protocol. More importantly, for the understanding and transparent continuation of whole body donation, are the ways in which technicians and other workers conceive of and practice their work as part of something bigger than them, part of biomedical science.

Theories and Lenses

In this final chapter, I suggest what re-focusing the conversations and practice of using cadaveric bodies in medicine could look like. I have cited Annemarie Mol's analysis of ontological practices as useful in framing how one object can be multiple and how objects are constructed, relied upon, and to some degree collapsed and hidden by biomedicine. She writes that her book, or her argument, "does not speak of different perspectives on the body and its diseases. Instead it tells how they are done. This means that Mol comes to talk about a series of different practices. These are practices in which some entity is being sliced, colored, probed, talked about, measured, counted, cut out, countered by walking, or prevented. Which entity? A slightly different one each time" (Mol 2002, vii). Importantly, "the ways in which [bio]medicine attunes to, interacts with, and shapes its objects in its various and varied practices" has an important effect: "what we think of as a single object may appear to be more than one" (Mol 2002, vii). Although the human body may be thought to be singular, priceless, and precious, by following the way the cadaveric body is transformed and *enacted* in CME training and research we learn new ways to see and talk about "the way medicine enacts the objects of its concern and treatment" (Mol 2002, vii).

In this study, I examined the labor that is relied on by many, but done by few. I "surfaced" (Taylor 2005) some of the underlying conversations, practices, understandings, feelings, and meanings of what working with cadaveric bodies entails. By addressing the taboo, I hope to catalyze more conversations that recognize and appreciate the work that biomedicine depends on but is often done in the margins. I asked how bodies arrive to donation organizations, how they are processed and transformed, and put to use. I also asked how bodies reconstituted and disposed of and questioned the type of labor that is extracted from the commodity chain. Finally, I asked how bodies are valued by a diversity of different actors in the lifecycle of a cadaveric body.

Structured Takeaways

While I limited my study to two CME training and research sites that had affiliations with university body donation organization, I learned that cadaveric material may come from many places. Each donation organization has different standards for treatment regarding the constants of tracking, anonymity, and safety. I spoke with technicians who developed cadaveric body treatment protocols, other technicians who followed protocols, and managers and directors who supported technicians. I learned that some staff see their role as facilitating a greater good; that while many in the public may not know what these technicians do, they feel they are contributing to science and biomedicine, because the clinicians who used the bodies they set-up may one day contribute to curing cancer or developing a new surgery technique for one of their loved ones or even the technicians themselves.[14] Other technicians used this experience as a stepping stone to a healthcare career and became frustrated by their lack of access to medical knowledge. Drawn to work in this field because of the proximity to physicians and clinical applications, technicians did not feel they acquired clinical knowledge that could contribute to the development of their health career aspirations. Other disappointments paralleled concerns over profit and capitalizing on "gifted" bodies. In addition to describing tensions, frustrations, and values of technicians, I also learned about the ambiguity and inconsistencies in how bodies are ultimately "put back together" and disposed. Cadaver bodies, at the end of their "life", are considered donors, specimens, and waste all at the same time; they are multiple throughout their lifespan. Cadaver bodies never cease being many things, they are ontologically and metaphorically multiple.

I have looked at the use of cadaveric material in CME training and research labs and not at its use in research settings without training labs. Although I did collect data from technicians who work in research-only labs, my focus was on the application by future clinicians of the skills they learned in simulation with cadaveric material. As patient stand-ins, cadaver bodies were imbued with metaphorical meaning and with tangible value. Indeed, acquiring cadaver bodies was no simple matter; it took work (see Chapter 3). The experiences of technicians who interact with clinicians, who fulfill orders for clinical and basic science researchers alike, help us envision the type of care that will be implemented with living patients, sometimes referred to by CME lab users as "real patients" or "real people." I say "will be" because it is the care clinicians are learning to provide in (or are already providing outside of) their CME trainings. Exploring

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[14] This actually happened to me. I was in an accident during the time that I was an employee at the Northern California CME lab and had surgery in the adjacent hospital by faculty who taught in the CME lab in which I worked.

how labor in CME labs is organized and what technicians learn to think of as appropriate treatment of the patient, real or not, should be a priority for any body donation program that operates in non-transplant CME spaces, since they too will be held responsible for how their cadaveric material is treated.

An analysis of division of labor was prominent in this research. Tracing a commodity chain requires attending to the different actors, rank, and roles of those involved. From the directors of a university body donation organization to the research assistant working part-time in a biomechanics laboratory, each have responsibilities and relationships to the bodies in use in CME training and research. These lie on a hierarchy. On one level of the hierarchy lie directors, managers, and professional heads of organizations. Their relationship to bodies is one of respect, but distance. Their concern is with the way in which their organization, and the field more generally, is perceived and continues to operate. On another level of the hierarchy are technicians who deal daily with the cadaveric material. Technicians may interact with the bodies early in the transformation from donor to cadaver (a process I outline in Chapter 2) or later as the bodies are treated as specimen, a scientific commodity. And yet, at no point are technicians unaware that what they are working with and on were human. They feel a responsibility to treat the cadaveric material *with care and respect* in order to make the most use of the material, of the donated body. What this care and respect looks like, varies slightly from technician to technician. The enactment of care and respect falls outside of an institutional logic that requires, and sometimes only requests, donated material be kept fresh, tracked, anonymized, and not wasted. I draw this distinction not to suggest that that such a division of labor is not inappropriate or incorrect, but rather to show that this is the way in which the system has been constructed. I do argue that thinking about care and respect are exercises that should concern all who work in CME, from directors, to clinicians, to researchers, to students, to residents, to bioethicists, to the public who rely on the work of cadaveric bodies and technicians. However, I do not argue that there is one single way to care or to pay respect, rather that there will be different conceptualizations, but that these need to be made clear. The way this could be done is to first acknowledge in trainings, research, and any activities the people who made this possible-donors and technicians. Second, medical professionals can include names of people who have donated their bodies in yearly public memorials with the names read of those who have labored--technicians involved in their care. And third, health professionals can incorporate the expectations of the cadaveric material they work with (and the people who prepare it) in bioethical curricula or case reviews.

I follow the lead of other scholars who have examined invisible labor. Scholars such as Arlie Hochschild (2011) whose seminal works on invisible labor in paid employment laid out how emotions become commodities in service work. My work also relates to Karen Messing (1998) who highlights how janitorial staff contribute to patient wellness in hospitals. I draw on the work of Marion Crain, Winifred Poster, and Miriam Cherry who highlight invisible labor in spaces outside of biomedicine, but nonetheless "focus on labor that occurs within formal employment relationships but is not conceptualized as work and so remains hidden from view-sometimes in the public imagination, sometimes from consumers, and sometimes from the workers themselves. When their work is erased, the workers themselves are sometimes rendered invisible as well" (Crain, Poster, and Cherry 2016, 3). And importantly, one of their main themes is how invisible labor is often unregulated (Crain, Poster, and Cherry 2016). While I do not offer an answer for how to regulate invisible labor, I assert we should consider these tensions and these invisibilities. Labor is not produced as already invisible. It is made invisible. Much like bodies in CME. They do not simply exist, they are made. The tension lies in how they are treated, moved, and what stories are told about them. This is as much for bodies as it is for technician's labor.

And after all this, I return to the question of why. Why is it that we should care about what technicians think, feel, and do or what bodies used in medical training and research are subject to? I echo the argument that medical anthropologists, bioethicists, clinical anatomists, historians, and religious scholars have made: dead bodies reflect a society's moral values. I build on scholarship that posits that the human body has long been commodified for medical use. In addition, I add to researchers who note how even as legal and public opposition to use of bodies for medical use has declined, public disdain simmers when knowledge that bodies have been lost, sold, or "improperly" treated (Smith n.d.; Grow and Shiffman 2017; Hoeyer 2009; Hallam 2017).

Perhaps what might be helpful in dealing with these public shocks is to take seriously what body donation organization personnel and CME training and research staff all claimed was an important part of their work: respect. In my analysis, I have argued that respect is a boundary object, as described by Star and Griesemer, an object which is "both plastic enough to adapt to local needs and constraints of the several parties employing [it], yet robust enough to maintain a common identity across sites" (Star and Griesemer 1989, 387). Taking respect as a boundary object allowed me to use it both methodologically to elicit information from informants, and theoretically, to draw connections across my data. Respect was an entry point for many users and actors on bodies to engage in a discussion of what practices they enact. I used this as an opportunity to see both the similarities and the discrepancies in how differently positioned personnel spoke about their values and responsibilities to bodies. Respect allowed me to see that a concept which is considered common sense, and in fact expected, from the donation and use of bodies was much more nuanced and multiple than one might expect. Respect was the golden rule, of treating others as you'd like to be treated. Respect was not laughing at the bodies. Respect was not making money off of bodies. Respect was not wasting the cadaveric material. Respect, as act and as rhetoric helped surface tensions and motivations. It was also a useful guide in discussion of personal choice and autonomy.

I also engage with the four bioethical principles of respect for autonomy, beneficence, nonmaleficence, and justice. These are not supposed to be hierarchical principles, since they are to all be attended to if the ethical case demands. However, in clinical application these four principles are often collapsed into a focus on autonomy. Interestingly the first part of that principle is lost: respect for. What I argue here is that respect, as action, as conversation, as enactment, be attended to. Ethicists, clinical directors, and care team members should attend to the meanings of "respect." By focusing on respect, we might be able to understand what autonomy means and therefore how best to reflect that for patients, donors, and next of kin. This would mean acknowledging what the entire process of the choice to donate has entailed. Currently, CME professionals and medical professionals pay attention to the choice to donate, but if there is respect for the choice, then the process of arriving to that choice should also be taken into account. Here I do not just mean, were donors coerced, but what are the motivations, expectations, discussions, and hopes donors have for their bodies and how will those be translated or communicated to the CME professionals who will inevitable use their body? "Respect for" should entail more than acceptance.

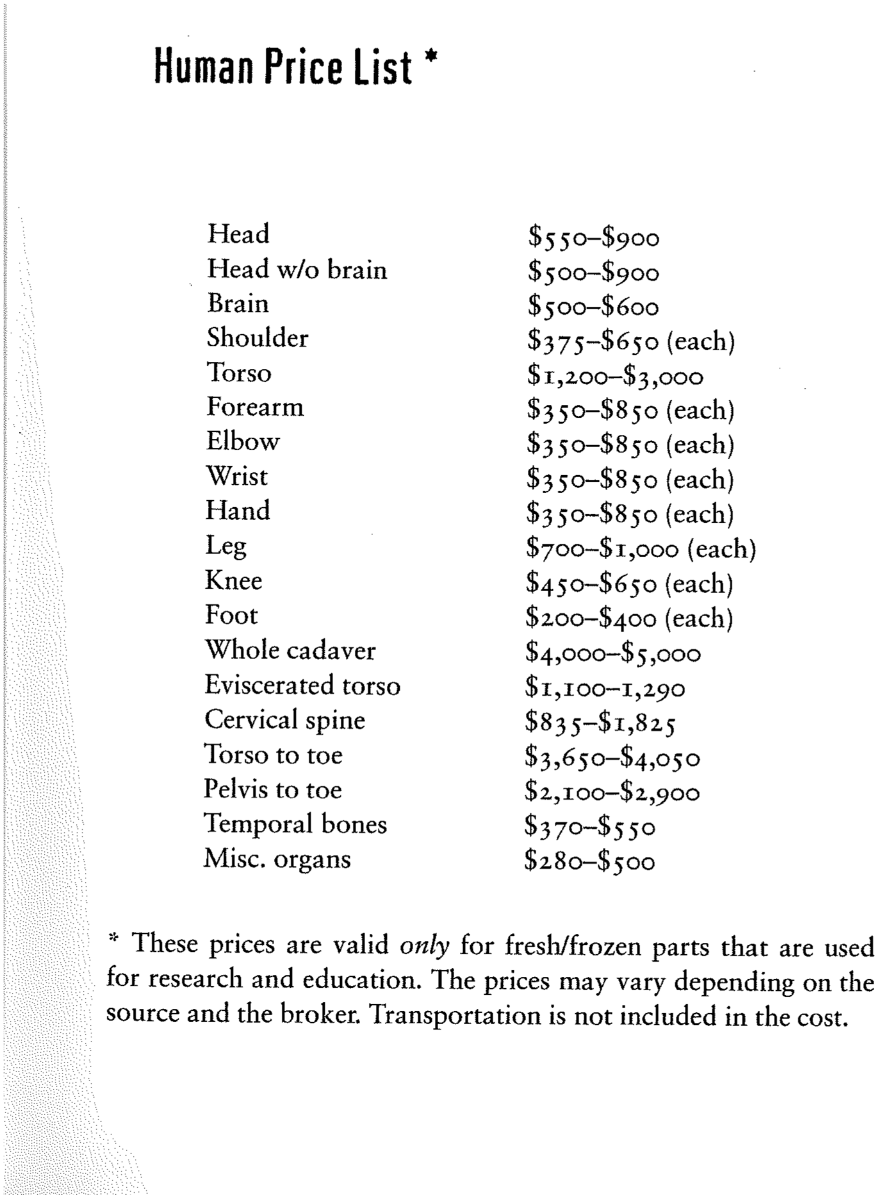
I have shown that engaging with practices that categorize bodies as having incalculable worth, should also in the end work to calculate what that worth is. This calls upon the medical professional community to be transparent about the donation process and the labor of technicians it depends on. Donors are trusting their bodies will be used for good. Technicians give up acknowledgement of their (trade) knowledge to create a knowledge for others. Technicians (and bodies as well) set aside their education, or access to education, for the advancement of medical professionals' education. The value of bodies should not be taken for granted, because in doing so, we create shields and taboos that hide what happens in application. In fact, bodies are not priceless because they have value, that is monetary, tradable value. By ignoring the fact that bodies are essentially bought and sold through an understudied and poorly understood legal market, we damage our ability to understand medicine and science more deeply. We are unable to see the motivations of people who donate their bodies and their families' desires. We are also unable to see the labor that those who care for these bodies do and what *their* motivations and their conception of value is in work with cadaveric material. In some CME training and research labs, technicians operate on the margins of training and research; they are neither heard by their institutions or even users in the room nor do they have "a seat" at the metaphorical table (like that for Bill, see chapter 3). As I have shown, technicians' motivations and personal values determine much of the day-to-day treatment of bodies. Why would it be that biomedicine would not want to highlight their contribution?

There is also the question of how we recognize intention and values. Does the system of CME training and research allow for and have enough capacity to take into consideration what donors and families of donors want from their body donation organizations? What would it look like if body donation organizations and consequently the CME training and research labs they work with implemented these requests? If whole body donors were able to provide more direction on how tracking, anonymity, and security looked, would body donation organizations oblige? If these policies are acquired from a panoply of sources, although mainly corrections to historical and contemporary egregious behavior, why can donor inputs not be taken as well? I would like to suggest that future research on this topic incorporate the donor experience and that the negotiations between these donors or donor kin and body donation organizations over treatment be done publicly so as to avoid outcry over misuse of bodies and provide transparency into the process. I also advocate for more research that looks at the impact and value of long-term technicians in the context of CME training and research. It is interesting to note that as CME training labs are increasing long-time technicians will have more influence and power in the types of conversations and work that is highlighted. This deserves attention in future studies.

Finally, this dissertation tackles the question of worth. There are many people, resources, programs, ideas that are necessary for the production of graduated, learned health professionals. It very much takes a community. There are, however, people whose worth is not recognized in this process. I have highlighted two. Often biomedicine does not know or recognize the worth of people, not just the act of donation, but the worth of the people on the table and those who have helped get the body on a table.

After writing this dissertation, I am moved to ask questions that I would not had I not carried out this research. During medical instruction, who else besides teachers and students are in the room? What are we doing as a medical anthropology community and as ordinary citizens for those individuals, living and deceased? How do we recognize the unseen laborers' contributions and aspirations? These questions are not easily answered. They require engaged ethnographic study. My study has only highlighted one aspect of a universe of potential questions.

Appendix



Human Price List *

Head	$550–$900
Head w/o brain	$500–$900
Brain	$500–$600
Shoulder	$375–$650 (each)
Torso	$1,200–$3,000
Forearm	$350–$850 (each)
Elbow	$350–$850 (each)
Wrist	$350–$850 (each)
Hand	$350–$850 (each)
Leg	$700–$1,000 (each)
Knee	$450–$650 (each)
Foot	$200–$400 (each)
Whole cadaver	$4,000–$5,000
Eviscerated torso	$1,100–1,290
Cervical spine	$835–$1,825
Torso to toe	$3,650–$4,050
Pelvis to toe	$2,100–$2,900
Temporal bones	$370–$550
Misc. organs	$280–$500

* These prices are valid *only* for fresh/frozen parts that are used for research and education. The prices may vary depending on the source and the broker. Transportation is not included in the cost.

(Cheney 2006)

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