BIOARCHAEOLOGY AND THE TERM "CYBORG"

by

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ABSTRACT

MARA STUMPF. Bioarcheaology and the Term “Cyborg”. (Under the direction of DR. SARA JUENGST)

As it becomes more common to integrate technology into the body, a more in depth understanding of how society reacts to terms such as “Cyborg” in an academic context can be very beneficial. My project focuses on the term “Cyborg” and how professionals in the field of Bioarchaeology, Forensic Anthropology, and other related fields interpret its definition and whether it should be used in an academic setting or not. For this study, I analyzed literature from decomposition facilities and combined it with data from survey responses of Bioarchaeologsts/Forensic Anthropologists and other related fields and then compared it to materials from Disability studies that correlates with the usage of the term “Cyborg”. I considered how these two areas influence and interact with each other in an academic setting and found that while the results of the survey were similar between the active anthropologists and those in disability studies, there is little interaction between the two.

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CHAPTER 1: INTRODUCTION

Becoming a cyborg is often thought of as a goal for the future of humanity, but in different ways, there are already cyborgs among us. Literature from varying social sciences has suggested that cyborgs are more prevalent today than one might think. To some, our direct interactions with the internet, phones, computers, and other technological devices that we use daily make everyone who is able to access this technology a cyborg. Others believe that someone who identifies as Cyborg is more limited to those who use technology for the sole purpose of physically advancing the human body and mind for the future. Definitions of cyborgs have changed through the years since the term's creation in 1960, and many debates still rage, including belief in whether cyborgs currently exist, and if this is a modern creation or of antiquity. Cyborg studies often include discussion of medical intervention such as amputation and trepanation as types of technological integration with the body. Additionally, people with disabilities play an important role in cyborg studies because a majority of people who have been classified as cyborgs are from this community. However, while many voices have participated in this conversation, there is little to no bioarchaeological literature regarding cyborgs or what it means to be one in society today.

There are several interacting fields including forensic anthropologists and medical examiners that could benefit from developing a way to understand how some people identify themselves as a cyborg, and what it means for the specialist in that line of work. There are missing pieces in the study of cyborgs. No one has specifically defined who was or was not a cyborg. Analyzing current works and the wording surrounding people

who are cyborgs, as well as the parts that make them such, can begin to show us more in depth how we view the body, especially those who are different from us. Our bodies and identities that define them also frame social structures that we interact with on a daily basis. Understanding how cyborg and disability studies interact with identity and the integration of technology into the body can bring to light how technology is therefore seen as part of the body or not.

In this thesis, I studied what it means to be a cyborg by definition and how different people define cyborg. I reviewed current literature and legal documentation surrounding the body after death to analyze people who are cyborgs and how their bodies are treated in relation to this identity. This research is beneficial to the anthropology community because it links the social implications stemming from disability studies with the cyborg identity and including able bodies as part of the demographic assists in obtaining the significance of what it means to be a cyborg for everyone.

CHAPTER 2: WHAT IS A CYBORG?

The term Cyborg was first used by Manfred Clynes and Nathan Kline in 1960 (Gunkel, 2000) when referring to humans who had to change the way they function on Earth to fit that of space travel. Since then, the concept of cyborgism has been heavily influenced by science fiction. When many people first think of a cyborg, their immediate thoughts go to individuals that are more technologically advanced and generally more computer than human. A cyborg is often considered someone who began as a human and added technology to their body to achieve maximum functionality or to extend their function past that of a 'typical human'. This is different from other technology such as AI or android-like beings, as they are dressed up to look and function as humans do, but are ultimately completely composed of technology (Joan, 2011). They may not have the same ability to use, develop, and/or spread culture and its significance the way that humans or cyborgs can.

While the term "cyborg" may seem to have a straightforward definition, there are many perspectives that have been taken in approaching how it can be applied and to whom it can be applied. As we continue to advance in technology and use it in and on our bodies, we change how people interact with technology on a daily basis. This can range from the daily interactions people have with the internet or their phones to more physical interventions, like prosthetics or implants into the body (Barfield and Williams, 2017). Approaches to defining cyborgs vary based on the researcher's profession, personal identities, and cultural differences, discussed more in the next section. Thus, discussed more below, the definition of cyborg and who is to be considered one is a concept that

has changed over time and will continue to do so. As technology continues to advance daily and we integrate technology with our bodies, we change who we are.

CHAPTER 3: PERSPECTIVES ON WHAT IT MEANS TO BE "CYBORG"

There are two main approaches to cyborg studies: from engineering and social sciences. These perspectives differ because of theoretical backgrounds, ideals, and opinions. Profession can drive perspectives on topics based on the ways in which people learn how to think in each specific field and how to apply that knowledge to interact with the world. This can encourage differing perspectives between the sciences and humanities on topics such as who is perceived as cyborgs. Another factor is whether someone directly or indirectly works with the individual or the technology and material creating the cyborg as well as the theoretical viewpoints that they are basing their work on. For example, when you look at the engineering perspective, Kevin Warwick (2016), Hugh Herr (2014; 2018), and Steve Mann (2001) have drastically different views on the technicalities of a cyborg from each other, and rather than the cultural perspectives taken by Donna Haraway (2016) and other social scientists who use a cultural and/or a posthumanist feminist framework to define who is categorized as a cyborg. Understanding the background and the perspectives of who is answering the question of cyborg identity is critical in knowing why each person classifies someone as a cyborg because this can lead to a difference in definition altogether.

Engineers and other professionals that work directly with human enhancement technology or prosthetics have a slightly different view on who should and should not be classified as a cyborg than that of a social scientist. Hugh Herr (2014; 2018) is an engineer at Massachusetts Institute of Technology who creates bionic replacement limbs for people who lost limbs through amputation or accident. He himself has two

bionic/prosthetic lower halves of his legs, but would not consider himself to be a cyborg. He does not identify as such because he cannot feel his bionic/prosthetic legs. While the technology that he has used to create prosthetic limbs can understand and anticipate what he wants them to do based on natural body movement, the connection to the artificial legs does not go the other way, leading him to be wary of considering himself a cyborg (Herr, 2014; 2018). This is in contrast to what many others would define as a cyborg since his body does incorporate technology, but his experiences working directly with the technology itself rather than just obtaining it when needed may have changed his opinions. His work and beliefs on who is a cyborg or not covers both people with and without disabilities and how technology can be used to help benefit people with or without disabilities. For Herr (2014, 2018), the future of cyborg technology includes the advancement of technology and redefining human potential with technological advancements. Specifically, he and others are trying to develop technologies that can be implanted in both the person as well as the prosthetic limb that creates a neurological connection leading people to be cyborgs in his eyes.

Warwick (2016), another engineer who works with the connections between human and nervous systems, argues that definitions need to be more specific when categorizing someone as part of "Homo technologicus", or a cyborg that has reached the next level of evolution. He states that "Homo technologicus is considered … to be one in which the entity is formed by a human-technology brain/nervous system coupling in which the complete entity goes well beyond the norm in terms of Homo sapiens performance" (Warwick 2016: 200). Simialr to Herr (2014;2018), Warwick defines

cyborg as existing when technology is linked to the nervous system so that the body can work with it directly.

Warwick (2016) defines four different categories of technological enhancement. The first category is someone who interacts with common everyday items to enhance their experiences as a cyborg, such as wearing glasses or a watch, or riding a bicycle. The second version is defined as having implants into the body (but specifically not the brain and or the nervous system) to make life easier, rather than for therapy of any kind. These implants may be used to identify a person, turn on and off varying technology, or help someone in the identification of color via frequency waves, and still require an external force to remain operational. For instance, Neil Harbisson is a colorblind individual that has attached a camera to his skull that vibrates at different frequencies of sound to represent a span of colors. While Harbisson can differentiate between about 360 different hues of color, he still needs the external device to do so, placing him in this category (Warwick, 2016). The third version involves direct neurological involvement but as a therapeutic tool rather than for technological advancement. This includes BrainGate, a system of electrodes attached to someone's motor cortex to allow the use of neuron signals to move a cursor on a computer. This allows people who have been paralyzed to interact with others through technology. The final category "describes the situation when an individual's brain/nervous system is linked directly with a computer for the purposes of enhancement beyond the norm for Homo sapiens" (Warwick 2016: 205). Warwick (2016) also discusses how this would change life for people if we were to move past the abilities of Homo sapiens and to that of Homo technologicus. There are fundamental changes we would have to make to coincide with the alteration of human bodies due to

different ways in which connections are made in the brain, how we would determine value in different bodies, and lastly the ethic surrounding those who have and who have not altered their body regarding Cyborgs.

One of the most referenced works concerning the cultural definition of cyborgs in society is Donna Haraway's Cyborg Manifesto. Haraway (2016) declares that "(a) cyborg is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction. Social reality is lived social relations, our most important political construction, a world-changing fiction" (5-6). For Haraway (2016), the definition of cyborg does not stop at technological changes to the body but extends to how society shapes us as well. Lived experiences shape how we are treated, what we believe in, and ultimately how we identify. Politics, history, and the link between humans and technology are intertwined together to create what could be considered the modern cyborg – someone who is influenced by and interacts with technology daily (and again it does not necessarily have to stop at the technological extension of the body in Haraway's eyes).

Haraway further states "bodies are maps of power and identity. Cyborgs are no exception" (65) and she emaphaszies the idea that Cyborg bodies did not come into fruition in the ways that people who are not cyborgs did. Haraway reflects this ideology onto a future without gender and takes into account how the "western ideals" do not relate in the same way with nature as one who is not a cyborg. Technological integration changes the construct of the body in a social and physical aspect. In her examination of gender roles between people, cyborg theory helps with the intersectionality of realities and identities. She investigates the politics that create the social structure/theoretical

framework of a cyborg by arguing that "the boundary between science fiction and social reality is an optical illusion." (Haraway, 2016, p.6).

Others, including Gunkel (2000), push past the integration of technology into our bodies and define us as cyborgs already due to our interactions with technology on a daily basis. We have incorporated technology into nearly all aspects of our everyday lives: to do work, communicate, travel, and even in reproductive technologies. For example, at this point in (our) society, many people rely on phones to do necessary work like checking email, using the duo app, or even using maps to get where we need to go (Gunkel, 2000; Barfield & Williams, 2017; Warwick, 2018).

Another way that we incorporate technology is directly into our bodies, so that we can continue to function as what society has deemed 'normal' again, for example, through hip surgeries or the use of prosthetics to gain function back to a limb. When looking from a genetic standpoint, we also see people changing the DNA of their babies through gene editing, which is done technologically and can be argued that anyone born from this process are cyborgs too (Groff, 2015). Notably, cyborgs may not exist everywhere. Gunkel (2000) argues that "the cyborg should not be understood as a new, universal category that can simply replace that of the human. Rather, it should be understood as a highly specific and strategic intervention simultaneously aimed at and situated within the history and ideology of Western thought" (338). Thus, Gunkel uses the term to show how we as humans continue to move forward, but also taking note that this version does not apply to all cultures or countries, or that cyborgs also exist within social/cultural circumstances, both in reality and in definition.

Some scholars use theoretical frameworks of transhumanism and posthumanism to investigate the differences of who a cyborg might entail. Çavuş (2021) states that "(a)s a philosophical movement Transhumanism advocates using technology to enhance the human condition physically and cognitively" (177) to further the human in terms of the mind and ability with the integration of technology to do so. In this way, technology is used as a way to control how humans evolve and prevent death by finding new ways to sustain "life", or in this case specifically, the human mind. The difference between the two is that "(t)ranshumanism is a successor of Humanism which is a modern philosophy, whereas Posthumanism builds on Postmodernism's criticisms of anthropocentrism, Eurocentrism, colonialism, racism, and sexism" (Çavuş 2021:180). While both Posthumanism and Transhuman stem from Humanism, Humanism itself focused on the individual's level of being able to live one's life through personal fulfillment. Haraway (2016) and other postmodern feminists have deliberately moved away from this style of thinking due to it being rooted in focusing on the human being strictly alluding to white, western, able-bodied, and male. Subsequently, Posthumanism draws from those who critique Humanism and therefore builds off of all living things working together rather than the centering of humans that Transhumanism works towards (Çavuş 2021). These frameworks have been able to shape how we think of humans and cyborgs by asking questions about the necessity for technology in human futures.

CHAPTER 4: DISABILITY AND THE CYBORG

Many people that live with integrated materials in their body to help with their functioning through the world are a part of the disabled community (Barfield & Williams, 2017). These materials and/or enhancements may include prosthetics, implants, or joint replacements; in all cases, these people have added foreign material to their bodies to help gain back functionality or enhance their experiences with the world around them. In both the past and present, people with disabilities navigate a world predominantly designed for the able-bodied, often while being criticized and treated as less than human (Meyer & Asbrock, 2018) (although not always; see Sneed 2020 for a discussion of (dis)ability and temple access in Ancient Greece). Along with this, there are social implications surrounding people with disabilities and how they navigate their day to day lives in this category of not being seen as "normal", or in some cases, fully human. Cyborg studies is not different and, in the past, has focused solely on people with disabilities who interact with devices including prosthetics as the only people characterized as cyborgs. Who qualifies as a cyborg is not limited to those who have a disability. Continuing the change in this narrative begins with unbiased research questions and fieldwork that further prevent the disabled body versus the able-bodied rhetoric in past research.

CHAPTER 5: DEFINING THE BODY

How we define the body is the first step into investigating how different bodies are perceived. An ideology that we often place onto the body is the idea of what is considered 'normal' or not. Davis (1995) discusses how the term 'normal' really just means the most common, or average. After this standard for normal was created in 1855 in a modern Western perspective, people have strived to fit into that category. Anyone who falls outside of this category tends to be ostracized, especially when they are not meeting the expectations for normal (Meyer & Asbrock, 2018). This can be applied to people with disabilities as their physical bodies may mark them as outside the "normal" expectations for what bodies should look like and what they should be able to do without technological assistance.

Bodies are a very important resource for bioarchaeologists, both as the material they study and in relationship with their surrounding contexts. Sofaer (2006) analyzed different ways in which archaeologists have referenced bodies through time and space, making sure to be aware of how bodies are represented in different cultures. She approaches skeletal bodies through the use of as material artifacts within archaeology to interpret social conditions and by doing this is able to conclude that limiting the body to one or the other category leaves out important interpretations to lived experiences. Bodies are often fluid in terms of category, as they can change what is represented by how the body has been interpreted. It is not just the physical, but also social implications that make the body important to study.

CHAPTER 6: SOCIAL IMPLICATIONS OF DISABILITY AND "CYBORG"

Negative stereotypes and poor treatment have negatively impacted people with disabilities as they have been treated as less than human in the past and present. Due to this, the subject of being a cyborg can be very difficult for people who are disabled based on the ways in which people approach the relationship. This increases the importance of creating a process that will be less harmful and inclusive when deciding who classifies as a cyborg and why, as this debate will continue into the future as technology continues to advance and becomes more intertwined in the body (Kafer, 2013; Meyer & Asbrock, 2018). This can also change our understanding of the term and identity of cyborgs. In addition, when focusing on the physical implications of who qualifies as a cyborg, it is important to note that not everyone is able to have a choice in the matter (Kafer, 2013).

In current cyborg studies, research based on incorrect stereotypes have influenced the separation of two independent categories of physical cyborgs (Goodley, 2011). Those who become cyborgs to regain function or otherwise return to what society has deemed 'normal', and those who become cyborgs to progress into the future and extend what the human body can already do. This language is harmful to those who may not have had a choice in becoming a cyborg and continues to put those who are able bodied and those who are not in two separate categories.

There are also some negative possibilities to note in a future of cyborgs. Along with who can and cannot or want to and need to become cyborgs, are also those who can and cannot afford to become one. Just like in the past and now, anything that is newly integrated into society can often create separation among the people (Kafer, 2013). For example, Haraway (2016) discusses how the term cyborg can be very beneficial for

feminists in the way that it reduces gender norms in society. Through Haraway's social lens, she approaches feminism with the use of the cyborg as a theoretical dualism of the mind and body combined with the realities faced by women in the social atmosphere. By way of this, intersectionality also plays a substantial role in how people are perceived as cyborgs. Boundaries of the body extend into the political realm signifying that the cyborg approach helps unite women and feminists and those united with machine through this approach by embracing change, promoting solidarity, and using a female influence to properly give a voice to those who have been oppressed (Haraway, 2016). Additionally, Haraway (2016) discusses the ways in which our society in the past and present has leaned towards a patriarchal system. Cyborg theory itself has been reflected under this lens, which is why Haraway reiterates the importance of including voices of those with different backgrounds.

When considering the physical abilities of a cyborg, it is important to consider that there is intersectionality between that identity and others that a person may possess. This also plays a role in who and who does not claim the cyborg identity for themselves in the ways that they became cyborgs. There are many people who want to become cyborgs solely for the reason that it is 'cool', or they want to advance themselves in the frame of human augmentation. In other words, it is to progress because we have the technology to do so. On the other hand, we see people who become cyborgs due to an infirmity or disability, such as people who were born without limbs and would like to use them, people who have needed their limbs removed for the sake of living longer or even limb removal from old wounds (Warwick, 2016; Weise, 2016; Barfield & Williams, 2017; Meyer & Asbrock, 2018; Herr, 2014;2018).

According to Kafer (2013), Weise (2016), and Meyer & Asbrock (2018), everyone who gets implants, metal plates attached to their bone, uses prostheses, etc. should be considered a cyborg. While some people may use devices to regain function, there are many ways in which they are also gaining function that goes beyond what a biological body can do. An example of this would be Hugh Herr, an avid mountain climber who lost his legs in a severe accident. After having his legs amputated, he gained bionic ones that helped him climb faster than he could before, and in more intense terrain than others could because of the prosthetics that he had (Brashear et al., 2015).

Only describing people who are disabled as being cyborgs just because they interact with technology is limiting in research and personal identity. Kafer (2013) points this out by stressing the idea that being a cyborg goes beyond the physical and is also an accompanying mindset. It is not just the interaction with the prosthetic, but how you view the world and yourself in it with the prosthetic. Including people with disabilities in cyborg studies is crucial because their lived experiences have already shown us how people are interacting with the world through the lens of a cyborg. Conversely, cyborg studies should also not be limited to those with disabilities because there are many people in the world who are not disabled, but are still cyborgs and have different interactions with the world because of that part of them.

We can regard cyborgs as the unification of human and technology, or the use of technology on a human. This can mean many things to the individual's identity as well as how society views them. Currently, there is little literature about what it means to be a cyborg from the perspective of biological anthropologists. Most current conversations are between people with cultural and sociological backgrounds, people who are engineers

and working directly with technology, whether it is added as a need or benefit, and within the disabled community. There has not been a notable addition to the conversation of past, current, and future cyborgs from the perspective of bioarchaeology. The biological lens of anthropology can be used to dig deeper into what it means to be a cyborg and how people have integrated this terminology into their lives. If human life as we know it does not end with the integration of technology, which is particularly relevant in society today, then we can look into the past to see how we are not just starting this progress now. While they may not have had the same social implications as cyborgs do today, this process of combining humans with relevant technology is not new.

CHAPTER 7: ANCIENT CYBORGS AND AMPUTATION

Identifying cyborgs in the archaeological record is possible through evidence of medical intervention on human skeletons. The two oldest and most relevant types of medical intervention impacting the skeleton and linked to the technological development of cyborgs are trepanation (skull surgery) and amputation (limb or body part removal). Both these surgeries have been practiced for millennia around the world and may provide insight into the very earliest cyborgs.

Amputation is the surgical removal of a limb and is one of the oldest types of surgeries, requiring the procedure to take place in mere minutes before it had developed better techniques. The first recorded evidence of amputation was found on a skeleton from France dating back to 4900 B.C. in the region near modern day Paris (Markatos et al., 2018). Amputation has been practiced for a variety of reasons including the result of combat and warfare, punishment, and as a medical intervention to save the rest of the body rather than just a limb. In comparison to trepanation, the practice of amputation was much more widespread with evidence dating back to the Neolithic period (4900–4700 B.C.) in France (Zäuner et al., 2011). Notably, the term "amputation" itself has not always been used and there are traces of documentation in or translated into English leading all the way back to the 13th century AD. At the time, amputation was more commonly referred to as the dismembering of the human body (Kirkup, 2007).

There are several other reasons that people used amputation throughout history. It was mainly used as a treatment to wounds or decaying limbs overcome with disease, punishment or other reasons that include natural causes, accidents (both the accidental dismemberment of a limb and needed to get an amputation), and elective amputation

(Kirkup, 2007). Amputation in modern medicine became most widespread as a way to treat gangrene, particularly throughout the Civil War and continued in other major wars such as the first and second World Wars (Markatos et al. 2018). Over time, we see a wider variety of needs for amputation including vehicular accident, loss of blood, or even attacks such as bombings that cause major injuries to the body, targeting where mass groups of people are present. In general, amputation has been closely linked over time to the military in various cultural and historical settings. In the past and present, military conflict produced many wounds requiring expedient medical attention for survival (Kirkup, 2007). In this way, medical intervention and military involvement has played a critical role for our understanding of human anatomy, developing better surgical techniques, and creating the stepping stones to who may now be considered a cyborg of the past.

The most common use for amputation was for diseased limbs, gunshot wounds, landmine wounds, and other major wounds that occurred in action. Coupland (1992) states that "(t)he three objectives of primary amputation for war wounds, in order of priority, are: i) to excise dead and contaminated tissue; ii) to be able to perform delayed primary closure; iii) to leave a stump that is acceptable for fitting a prosthesis i.e. preparation of the wounded part for a new function. A primary amputation which achieves all three objectives avoids complications." (5). Medical professionals needed to act quickly during these times to ensure that the remaining portion of the limb does not require more medical attention. In addition to this, attention was also paid to the sutures following the procedure so that the limb has the ability to function with a prosthetic, should the patient want one. The high amount of wounded and urgency of these

procedures were the main driving force for revising and improving amputation techniques through the years. This process has even advanced enough that in some cases there is no need for amputation at all. This also meant that there were people actively looking into how the results of these amputation procedures can result in the fitting and functionality with prosthetics.

While often practiced out of medical necessity, Kirkup (2007) noted the impact of cultural norms on whether or not amputation occurs. Some cultures are against amputation so they would prefer to live out their lives as best they can without the surgical intervention due to religious reasons, for example the Islamic faith (Kirkup, 2007). Understanding the societal conventions surrounding human-cyborg transformation is vital because that will shape and reflect the ideas and viewpoints surrounding cyborgs as well.

Characteristics of successful amputations include the completeness of the amputation, the patient continuing to live post-amputation, and weight-bearing following the surgery. The most likely reason for the removal of feet in these cases was due to infection of the foot that they did not want to spread upwards (Coupland, 1992; Verano et al. 2000; Kirkup, 2007). Verano, Anderson, & Franco (2000) also talk about the historical aspect of the available tools at the time and the limitations that people had because of it. Before the use of tourniquets and ligatures was widespread, these procedures needed to take place in a short period of time so the patient did not bleed out. The first recorded case of using these two techniques is credited to Ambroise Paré (1510–1590 AD) leading to the ability to use prosthetic limbs on both upper and lower body amputations

afterwards. Paré is often referred to as “father of surgery and modern forensic pathology” (Markatos et al. 2019) due to his keen eye for detail and studying the human body.

We can see many different examples throughout history of civilizations making use of amputation procedures and prosthetic limbs following along with them. One example of amputation we can find in Bulgaria from 6000 years ago, and is considered to be the oldest known case from south-east Europe. The pathology on the bones that indicate that it was amputated are the fusion of the right radius and ulna at the distal end, with it being smoothly rounded off. Muscle attachments of the arm suggest that it once had full functionality without any irregularities. Differences left on the skeleton resulting from the amputation were slight atrophy of the muscles on the right arm suggesting less use, but that it still was used and better development of the left clavicle due to more muscle development. While there is a possibility that this amputation was the result of an accident or even a punishment, the authors believe that it could have resulted from a surgery because common flint stone tools at the time would have been able to execute the procedure and the resulting wound was able to close without inflammation (Zäuner et al., 2011).

Another example we see of this was investigated by Verano, Anderson, and Franco (2000). They described three individuals from the Moche people of Peru (A.D. 100–750) and studied the markings and irregular bone growths found on the distal ends of the tibias and fibulas of these three individuals. In all three cases, the individuals had excess dense bone growing in one or both legs in the tibio-talar joint deemed non-functional. Due to the types of amputations found represented in Moche art, mostly the removal of the hands and feet, the authors suggest that they would have been able to

successfully amputate the limbs prior to the introduction of the saw. Because the saw was not yet introduced, the Moche people had to perform amputations with the simple cutting tools that they had already possessed including metal tools such as sharp knives. Verano, Anderson, and Franco (2000) concluded that the cases are the first evidence of successful amputations in the New World.

While the development of amputation had many advantages such as longer life, getting rid of infection, learning of human anatomy and general increase of medical knowledge, it also played a role in the development of cyborgs. With increasing numbers of people losing different parts of their limbs and wanting to regain that function back, the development of prosthetic limbs grew alongside the advancement of amputation surgery (Kirkup, 2007). Amputation techniques moved to develop far beyond keeping the patient alive after the procedure to making sure that the limb is cut and healed in a specific manner. This was so the person was able to be fitted for a functioning prosthetic if they chose to do so. Depending on the circumstances surrounding the amputation, when, and why it was done can change how healing sets. For example, most amputations done in a 'guillotine' style were more likely to heal with muscles atrophying leading to a large protrusion of bone, a trait that would not be comfortable and in most cases not able to use or even be fitted for a prosthetic (Kirkup, 2007, 143).

Kirkup (2007) notes that the information on the use of prosthetics or other types of makeshift limbs is largely lacking due to not having documentation on them. Despite this, we know since at least the Renaissance, people were creative in their ways to make prosthetic limbs (Finch et al. 2012). The advancements in technology and the materials that are available today have changed the way prosthetic limbs are created. We now have

the ability for engineers and scientists to analyze each individual and their situation to provide more accurate and tailored prosthetics to what specific functions need to be accomplished. Starting out, people used the materials that were available to them. For example, when we examine a prosthetic right big toe from ancient Egypt, we see that it was "made from cartonnage, a type of paper maché (layers of linen soaked with animal glue and coated with tinted plaster), and has been dated to before 600 BC." (Finch et al., 2012, p.181). This specific prosthetic is important because it may be the oldest one from the ancient world, and shows wear patterns of use, meaning it worked and was often used. These were the stepping stones of technology that have shaped prosthetic limbs throughout history. Without this development, we would not be where we are today in the understanding of cyborgs and their ancient counterparts.

Medical intervention of past surgeries including amputation and trepanation there is a relation between them and people who can identify as a cyborg. Both trepanation and amputation have played major roles in the development of cyborgs and how that definition may be used to describe people of the past. Trepanation used instruments and techniques to complete intricate surgery with a survival rate of over half, and may have involved the placement of metal, shell, or gourd implants over the cranial scar (Verano, 2016). Amputation and the military historical context helped lead to research on prosthetics, technological extensions of the body (Kirkup, 2007; Cusack, 2008) that created cyborg humans from an early period. Thus, the fact that cyborg technologies can impact the skeleton make bioarchaeological uniquely suited to investigate the antiquity of the cyborg identity, and to add to the dialogue about the cultural and historical aspects of how and who we define as cyborgs.

The word Cyborg has long been used for people sci-fi related contexts rather than people in real life. Since then, Cyborg theory and identity has been researched outside of the sci-fi realm and is not a new area of study. Disability studies have been breaking down what it means to be a Cyborg and how this term can be used as both a positive and negative descriptor for people. Along with this, there is also disagreement on who qualifies as a Cyborg or not, due to physical factors and general personal opinions. In the archaeological record itself, there are medical interventions that can lead to someone being identified as a Cyborg. This work helps to bridge the gap between social theories, physical incorporation of technology into the body, and personal identity.

CHAPTER 8: METHODS

In the fall semester of 2022, I collected data from a survey titled "Bioarchaeology and the Term "Cyborg". The survey was circulated and shared via Twitter and Facebook and through email listservs to those in bioarchaeology, forensic anthropology, and other related fields to ask how the term "cyborg" itself should or should not be used in an academic setting, and their connotations of the word. For the survey response analysis, I separated and reviewed the responses based on how they feel the term should be used within academia as well as their written explanations for why or why not. To do this I will be followed research methods outlined by Bailey, C. A. (2018). I coded the information by identifying common themes, ideas, and terms used throughout the data. After this I organized the themes into overall ideas that they support.

I also reviewed publications and legal documents by bioarchaeologists, forensic anthropologists, and medical examiners that references skeletal individuals with prosthetics or implants in ancient or modern contexts. In doing so, I documented the language that is used in regard to cyborgs and the technology that may make someone such. I analyzed the documents for (in)consistencies in terminology, interpretation, and treatment of these individuals to see if cyborg identity is assigned to these individuals. I analyzed the legal documentation from Western Carolina as it is the closest and most relevant decomposition facility in North Carolina and the surrounding region, and of the two largest decomposition facilities in the United States, at the University of Tennessee in Knoxville and Texas State University, to request access to their legal documentation surrounding who is and who is not eligible to donate their bodies.

If cyborgs and their technological enhancements were addressed in written publications by scholars working with human remains or in the legal documents of these facilities, then I examined if their technologies were treated as part of the body. This shows how these facilities and their employees address and think of the body in relation to incorporated technologies, as well as what it may mean in relation to the identity of cyborg. In cases where the term cyborg is not used in publication or policy, but medical interventions are described, I reviewed how medical parts of the body were treated. This included whether decomposition facilities accepted people and their technological parts, if archaeologists excavating burials considered prosthetics differently than skeletal remains, if any implants were treated as separate than the body or as an addition to/part of the body, and/or what language was used to describe the treatment of the body overall.

CHAPTER 9: QUANTITATIVE RESULTS

To gather data for my thesis question I utilized google forms to create a survey and obtain academic opinions of the term and use of “Cyborg” (Appendix A). My survey titled “Professional use of the term “Cyborg” had 22 respondents. Following the consent form, the survey consisted of nine questions ranging from background information to personal ideas around the term “Cyborg” and its usage in various settings. For this section I will present the data collected for each question.

9.1 Demographic Responses

To gather some background information on the people taking the survey, the first three questions asked were “Who is your primary employer?”, “What is your highest degree held?”, and “What is your primary area of work?” respectively, each receiving all 22 responses. Primary employment consisted of 19 people (86.4%) in University/College positions, two people (9.1%) in Governmental Institution positions, and one person (4.5%) in private industry. Doctoral degrees, the highest degree option, were held by 17 people (77.3%), Masters by four people (18.2%), and Bachelor’s degree by one person (4.5%). The participants’ focus of work consisted of 12 people (54.5%) in Bioarchaeology, six people (27.3) in Forensic Anthropology, two (9.1) in both of those categories, one person (4.5%) working for a Museum, and lastly one person (4.5%) working in the field of Archaeology.

9.2 Quantitative Responses

The remaining questions focused on personal experience and opinions regarding cyborgs, including: “Have you ever heard the term "Cyborg" used in science fiction

contexts?" and "Have you ever heard the term "Cyborg" used in academic contexts?", each accompanied with a follow up question "What images does this term conjure?". The first question had 20 yes responses (90.9%) and two no responses (9.1%), and the second with four yes responses (18.2%), and 18 no's (91.8%). These questions also allowed for optional, qualitative, open-ended responses. The final question of the survey was "Would you ever use the term "Cyborg" in a Medical/Forensic/Bioarchaeological context?" paired with a "Why or why not?" section for people to freely expand on their chosen answers. This generated a 2 yes (9.5%), and 19 votes for no (90.5%).

CHAPTER 10: QUALITATIVE RESULTS

10.1 Qualitative Responses

Open-ended responses included a general feeling that cyborgs in science fiction were commonly represented as augmented humans. Cyborg is a word used often in fictional contexts and survey results show that over 90% of the people who participated had heard of it in a Sci-fi related context. When asked to explain further, the three recurring themes of images conjured in this relation were robots, the mixing of organic and inorganic, and examples from Hollywood. These ranged from a simple “robot”, to “Humanoid looking organisms that have some human biological components but are mostly artificially constructed”, and even “"Humans who have robotic elements physically attached to them and the character "Cyborg" from Teen Titans (the older one not the newer one). There's something "more than human" about cyborgs in science fiction. Like they can scan buildings because of an electronic eye or have super strength with robotic arms, or something like that. They're enhanced by these technological body parts.” With a heavy focus on those integrating technology into the body for enhancement purposes.

A common concern brought up in the survey responses surrounding the use of “Cyborg” in academic contexts, is the potential harm the term itself can carry due to its negative connotations currently associated with it. One response really drove into this point by stating:

> “While definitionally the term cyborg is probably correct for people that have medical/dental devices in their body (to include things like hip replacements

> or dental appliances); calling someone a cyborg could be taken to mean someone is non-human or less than human. In a time when diversity, equity, inclusion, and belonging are at the forefront of people's minds I do not think we need to further "other" people by describing them as anything other than humans."

Hesitancy in using Cyborg to describe people was reflected in the survey results by only having two people say that yes, they would use the term in academic contexts and nineteen of those who would not. For the two that said yes to this question stated:

> "The term is descriptive, and I would argue that quite a few people have heard it in a fictional context. As long as the word is being used in the same way (to describe an individual who has had parts of their body replaced or enhanced with something technological) then it would be accurate to use it in an academic context."

And:

> "Yes, I would use it in a Bioarchaeology context, but again I think it is different than how it is portrayed in Sci-Fi. For me, it would be used to describe the bio-cultural interactions between bodies and materials and how the materiality of the body is shaped and reshaped through this interaction. I think it would require a very explicit definition and explanation in academic contexts because it is different than what is popularly thought of from Sci-Fi contexts. Also, I don't think bioarchaeologists are often familiar enough or engage with Science, Technology, and Society literature and theory (like posthumanism) though there is plenty that could be applied in very interesting ways."

These two responses as well as others show different parts of how Cyborg may be engaged with as an identity in the future. The first reflects on the direct use of technology incorporated into a body such as implants or prosthesis that someone wears. The second speaks more to the interaction between human and technology in all aspects of life, like phones for example, that may impact our daily lives, but are not directly connected to our bodies.

10.2 Written Guidelines Regarding Prosthetics and Medical Implants

The following data was collected from documentation on body donations to three body decomposition facilities throughout the United States.

10.2.1 The University of Tennessee, Knoxville

The University of Tennesee Knoxville houses the Forensic Anthropology Center, which runs a body donation program and curates over 2000 skeletal remains of donated individuals. They have over 4000 individuals "pre-donated, " i.e., individuals who are still living but plan to donate their bodies after death ("About the Forensic Anthropology Center "). This facility is the flagship "body farm" in the United States and set the standards for forensic decomposition analysis and body donation.

The literature for UT Knoxville that I used for analysis was their body donation form, a questionnaire that individuals fill out when they have made the decision to donate their body to this facility. The two pages that I have included for this facility reference medical procedures that relate to cyborgification. On page 16, dental history is covered with the ability for the individual to check off what applies including braces, bridges, etc. and asks the year the procedures took place, and for some, which teeth it applies to (fig 1). Page 18 references medical procedures that are not related to cancer,

and asks for the date of the procedure, the location of it on/in the body, and the type of surgery that took place (fig 2).

Dental History (Check all that apply)

- ☐ **Braces** Years _____
- ☐ **Bridge** Year _____
- ☐ **Fillings** Year _____ Which Teeth? _____
- ☐ **Gum Disease**
- ☐ **Implants** Year _____ Which Teeth? _____
- ☐ **Lower Dentures** Year _____
- ☐ **Upper Dentures** Year _____
- ☐ **Partial Plate** Year _____
- ☐ **Other** _____

Teeth Missing

- ☐ **None**
- ☐ **Few**
- ☐ **Many**
- ☐ **All**

Fig. 1 University of Tennessee, Knoxville: Dental History

Non-Cancer Surgical History- Please list any surgeries you have had and the date (minimally the year) of the surgery. Include any amputations, joint replacements/prosthetics, open heart surgeries, pacemakers, and plastic surgeries. Attach additional pages as necessary.

Date	Body Location	Type of Surgery

Fractures- Please list any bones you have fractured/broken and the date (minimally the year) of the fracture/break. Attach additional pages as necessary.

Date	Bone/Location	Left/Right/Midline	Treatment

Fig. 2 University of Tennessee, Knoxville: Other Medical Procedures

10.2.2 Texas State University

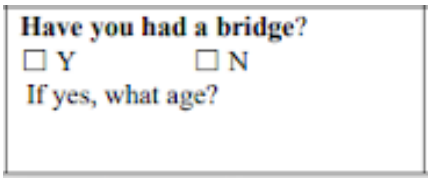
Texas State University also houses a Forensic Anthropology Center (FACTS) which includes a body donation program, an outdoor decomposition facility or body farm, and a donated skeletal collection. They curate at least 650 skeletal remains and have another 1000 individuals "pre-donated" ("Forensic Anthropology Research Facility"). While newer than the Body Farm at UT Knoxville, this facility is also one of the leading decomposition research facilities and body donation programs in forensic anthropology.

For Texas State, I have included data from their Living donor form and their Frequently Asked Questions page located on their website. In their Policies for donating your body, the first page states that:

> "We reserve the right to decline donations of individuals who are morbidly obese and/or who have some form of infectious disease such as HIV/AIDS, tuberculosis, hepatitis, or antibiotic resistant infections such as MRSA, even if contracted after donation is arranged. We reserve the right to request and review medical records prior to acceptance",

to cover their ability to turn down any individual at their discretion. Under the medical information on page five, it only asks about the presence of dental modification in the form of bridges or dentures along with the age the procedures took place (fig 3 & 4). Another section of this page asks about mobility restrictions and if the individual is sedentary or not. It follows up with the number of years someone has been and to elaborate on the types of mobility restrictions if present (fig 5). Following this is the medical history that has an area to indicate if any bones had been fractured, amputated, or

other surgical treatments also with a corresponding age of the procedure and identification of which bone or part of the body it was done to (fig 6). Finally, on their frequently asked questions page of the website, there is a question and response in relation to the ability to donate body parts (fig7).


Have you had a bridge?
☐ Y ☐ N
If yes, what age?

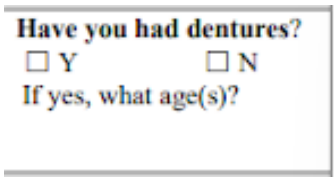

Have you had dentures?
☐ Y ☐ N
If yes, what age(s)?

Fig. 3 (left) & Fig. 4 (right) Texas State University: Dental Procedures

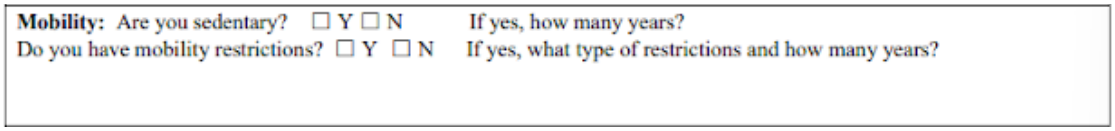

Mobility: Are you sedentary? ☐ Y ☐ N If yes, how many years?
Do you have mobility restrictions? ☐ Y ☐ N If yes, what type of restrictions and how many years?

Fig. 5 Texas State University: Mobility Questions

FACTS Questionnaire Continued

Medical History (please attach additional sheets if necessary)

Condition	Year(s) of onset	Condition	Year(s) of onset
Cancer, specify:		Anemia	
Anorexia/Bulimia		Arthritis, location(s):	
Cardiovascular Disease, specify:		Other Joint Problems, specify:	
Chemical/Alcohol dependency		Osteopenia/Osteoporosis	
Crohn's Disease		COPD/Emphysema, specify:	
Depression		Dementia/Alzheimer's, specify:	
Other Mental Illness, specify:		Diabetes (☐ Type I ☐Type II ☐Gestational)	
Gout		Hepatitis (☐ A ☐B ☐C)	
Sexually Transmitted Disease, specify:		Stroke/TIA, specify:	
Seizure disorder/Epilepsy, specify:		Thyroid Disease, specify:	
Tuberculosis		HIV/AIDS	
MRSA		Plastic Surgery, specify:	

Have you fractured any bones? ☐ Y ☐ N If yes, specify bone and age (if possible):

Have you had any amputations? ☐ Y ☐ N If yes, specify bone and age (if possible):

Other Medical Information (including medical treatment and/or surgeries for any conditions listed above, including age of treatment):

Fig. 6 Texas State University: Medical History

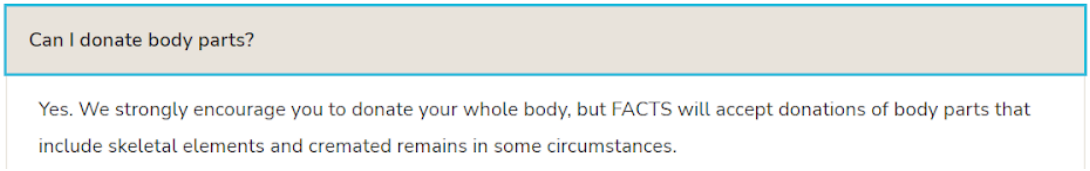


Fig. 7 Texas State University: Body Parts FAQ

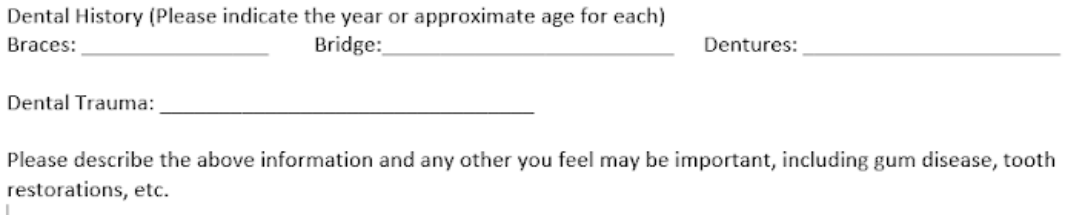
10.2.3 Western Carolina University

Western Carolina University houses The Forensic Osteology Research Station (FOREST) and is the second human decomposition facility created in the world. Sitting at 2271 feet above sea level, this facility is located outdoors and provides educational research in relation to taphonomy, human biology, and recovery of human remains in a forensic context, in addition to training Human Remains Detection (HRD) dogs and assists in case consultation to local law enforcement. Following the process of decomposition, the skeletal remains of willed body doners are then moved to the John A. Williams Documented Human Skeletal Collection (Forensic Anthropology Facilities). Regarding proximity, Western Carolina is the closest decomposition facility in the region.

For Western Carolina University, I have documentation from the Body Donation Questionnaire that both people wishing to donate their bodies or a loved one need to fill out to begin the process. In the introduction, it is stated that:

> "A number of activities can affect decomposition as well as an individual's skeleton. Knowledge about factors such as health conditions, medical procedures, and repeated activities like handedness allow for a better overall understanding of the biological impacts on an individual. These unique details provide an important resource for research and education",

to cover some of the content in the packet, especially those related to medical procedures done to the body. The second page asks about dental history including braces, bridges, dentures, or dental trauma with a section to expand if needed (fig 8). The third page inquiries about medical history including surgeries and asks to list the age for each (fig 9).

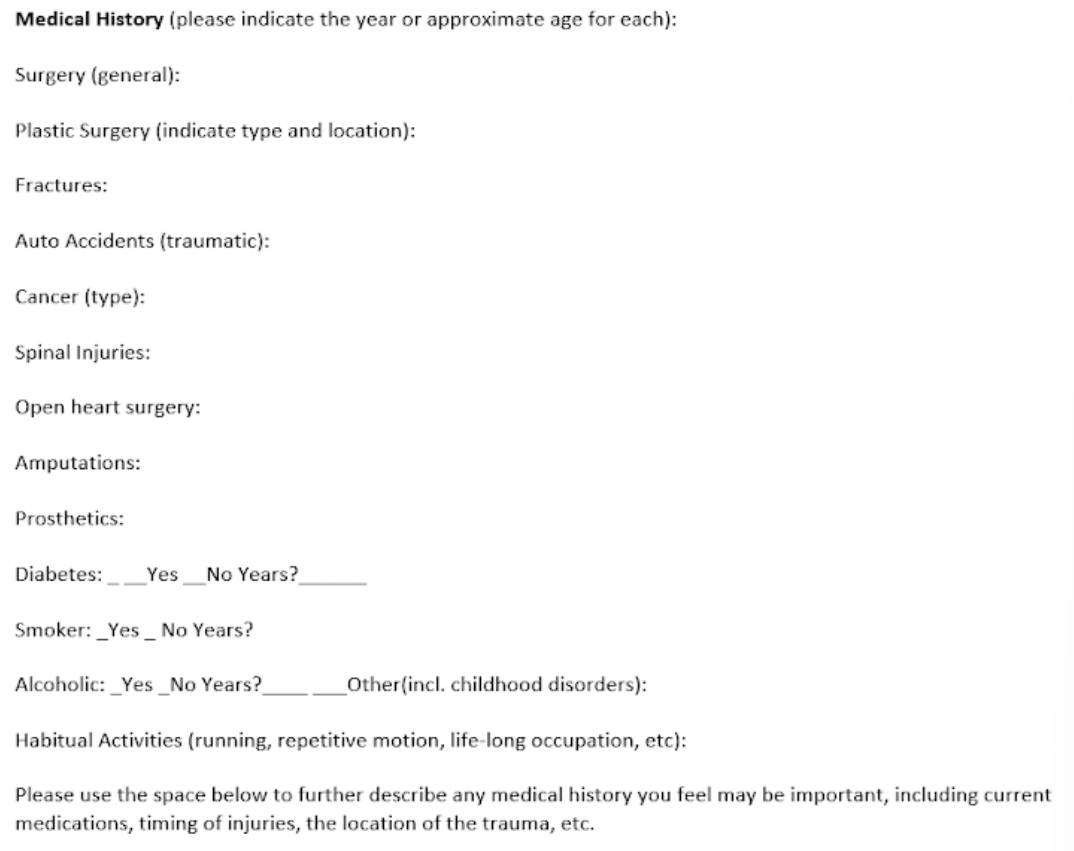


Dental History (Please indicate the year or approximate age for each)
Braces: _____ Bridge:_____ Dentures: _____

Dental Trauma: _____

Please describe the above information and any other you feel may be important, including gum disease, tooth restorations, etc.

Fig. 8 Western Carolina University: Dental History



Medical History (please indicate the year or approximate age for each):

Surgery (general):

Plastic Surgery (indicate type and location):

Fractures:

Auto Accidents (traumatic):

Cancer (type):

Spinal Injuries:

Open heart surgery:

Amputations:

Prosthetics:

Diabetes: _ __Yes __No Years?_____

Smoker: _Yes _ No Years?

Alcoholic: _Yes _No Years?____ ___Other(incl. childhood disorders):

Habitual Activities (running, repetitive motion, life-long occupation, etc):

Please use the space below to further describe any medical history you feel may be important, including current medications, timing of injuries, the location of the trauma, etc.

Fig. Western Carolina University: Medical History

CHAPTER 11: DISCUSSION AND INTERPRETATIONS

Identity is variable from person to person, but nonetheless still an important factor of someone's life. Identity on an individual level and within societal contexts can shape how they lived their lives. One area that I believe that the survey results do not cover as much and disability studies does, is the idea of Cyborg as an Identity. As Blackmore (2011) discusses, areas of identity such as sexuality play a pivotal role in lived experiences. Using this mindset can help to delve into the importance of this. She also explains that interacting with different social theories such as queer theory and, in this case, disability theory, does not mean that we are specifically looking for a certain type of person with these identities in the past, but rather exploring how those intersectional identities play a role in everyday life. Identities such as Cyborg are no exception. The founders of the Cyborg Foundation, Neil Harbisson and Moon Ribas, express how their Cyborg identities are to be celebrated and encouraged. Their foundation alone was created in order to uplift and support Cyborgs (Cyborg Foundation).

I think that this is interesting that we got similar results to current studies considering it does not look like a lot of active Anthropologists are working with disability studies theory (there is a disconnect). It is agreed upon here among both the participants of the survey and within disability studies itself that there is a general consensus that the term “Cyborg” may not be ready for use within academia due to its overarching role in fictional contexts, as well as the negative connotations that may be carried with it. This is something that is carefully considered in Literature surrounding Disability Studies, as this can be harmful to those who have medical implants and/or

prosthetics. While I mentioned above there are those who do identify as Cyborgs, this does not pertain to everyone and can lead to negative connotations and stereotypes of those within the disabled community.

Decomposition facilities are most often run by forensic anthropologists, which is what ties their literature to my project as they are present in the survey as participants. Decomposition facilities were created to assess the situational patterns surrounding the decomposition process of bodies. This can include where they are placed, what they are wearing, and more specific circumstances (Vidoli et al., 2017). In the decomposition facility literature, they did not specifically use the term Cyborg in their documentation. Bodies that have medical devices surgically implanted are kept with the body following the decomposition process if they stay in association with the owner. This is a direct relation to interpreting these devices as part of the body. While it is obvious that they do think about medical procedures and surgeries that directly relate to someone who might identify as a Cyborg, they do not use the term specifically likely due to its sci-fi and fictional association.

This is a prominent recurring theme representative of the survey responses: the first questions relating to Cyborgs in a Sci-fi context reflect that over 90% of the people who participated had heard of it in a Sci-fi related context. When asked to explain further, the three recurring themes of images conjured in this relation were robots, the mixing of organic and inorganic, and examples from Hollywood. These ranged from a simple "robot", to "Humanoid looking organisms that have some human biological components but are mostly artificially constructed", with a heavy focus on those integrating technology into the body for enhancement purposes in a fictional setting.

The next question addresses the academic context for which the term Cyborg has been found. While there were several "n/a" or "none" responses, in academic contexts people were more likely to bring up prosthetics, implants and joint replacements again with the one reference to Haraway's work and the theory she interacted with. One of the responses reads:

> "I use this term in my teaching mostly, but it is a very different image than the one I described above in Sci-Fi contexts. When teaching I draw on posthumanism theory to discuss the breakdown of the boundaries between what we think of as 'human' and what we think of as 'animal' or 'machine' and how technology has been interacting with our bodies for millions of years. This interaction physically shapes us in new and different ways and this doesn't always mean that machine parts have to be a part of our body in the way it is often portrayed in Sci-Fi. At the same time, our modern reliance of technology (from glasses to cell phones, etc) makes us a new kind of cyborg since these materials are extra-somatic, yet we often feel incomplete without them (like a part of our body is missing)",

which pushes past just the interactions with technology in regard to medical implants, and focuses on the social extension of ourselves and our bodies.

Finally, the overall hesitancy in using Cyborg to describe people was reflected in the survey results by only having two people say yes, they would use the term Cyborg in academic contexts, and nineteen of those who would not. A common concern brought up is the potential harm the term itself can carry due to its negative connotations currently associated with it. Several quotes agreed that no they would not use Cyborg because:

> "No. Assuming that someone would be referred to as a cyborg based on having some technology in place to restore, substitute for, or enhance a function for various reasons - limbs, implanted insulin pumps, nerve stimulation devices, brain-computer interface systems, other invasive or wearable assistive technology - why would anyone want to be reduced to that technology? Which is what that label - cyborg - does. Seems it prioritizes the technology over the humanity."

To emphasize the harm that can be done. Another quote that reads:

> "I think that my answer is more of an "I don't know" than outright "no", and because of that I didn't feel like I should put "yes". I think that if the term became accepted in the literature and discipline I might, unless I disagreed with the agreed upon definition. I'm unsure of how we would use "cyborg" in a bioarchaeological context though if a broader definition of "cyborg" is used. How would we know that the they constantly used technology in their life unless they had an iPhone in their tomb? With a more sci-fi definition, I guess you could tell if there was a robotic arm or something in their tomb?"

that further represents the uncertainty behind the use, definition, and even the identity behind the word Cyborg.

The results of my survey are intriguing as they similarly reflect current viewpoints of the use of "Cyborg" in academic contexts within disability and cyborg studies, but still have a lack of interaction between them. The first set of responses shows that by just focusing on the term Cyborg in fictional settings, it is clear that there is an association between someone with this identity and the combination of materials that just focus on enhancing the body to be able to do things that no human could do without them. This is

an extremely relevant point within cyborg and disability studies as it points to the idea that people need to be made "whole" again if someone is to incorporate medical devices into their body. As I mentioned earlier, many people use this term as a way to further able-bodiedness by continuing the narrative that people with disabilities are not "normal." Cyborgification has been used to increase the gap between able bodies and not able bodies by viewing implants, metal plates, prosthesis, etc. as ways to bring a body back to a baseline that is compared with able bodied people, which shows how important terminology and connotations have influence.

CHAPTER 12: CONCLUSION

The work that I have done here is a step towards a better understanding and inclusion of disability studies as a theoretical framework into bioarchaeological work. Currently, popular opinions defining the term Cyborg are heavily rooted in Sci-fi contexts. For academics, there is still that consensus, but when asked about its use in the academic setting, there is resistance. The data presented here suggests that while there is overlap of ideals, there is still a disconnect between the two. A perfect example is that Forensic Anthropologists are directly interacting with those who could identify as a cyborg, yet the survey results indicate that they do not currently interact with cyborg and disability studies. As per the survey results, the people who identify as Forensic Anthropologists would benefit from including this theoretical framework.

While the results of the survey reflect similar viewpoints that are currently held by many in Disability and Cyborg studies, there is still much uncertainty around the definition of Cyborg itself, especially as an identity. For Bioarchaeologists, interacting and incorporating these areas of study will help broaden the scope of identity in the past such as for those who navigated the world with an amputation and/or a prosthesis. As archaeologists, we do assign identity to those from the past, but I do not think that this is something that we necessarily have to do with Cyborgs. I think that the most beneficial action moving forward would be to use this as an interpretive framework as we do with queer and other theories. In this way, we can incorporate disability studies into our work and consider the importance of intersectionality with another lens.

With the increase of technology integration into our bodies, we as Bioarchaeologists and Forensic Anthropologists specifically are more likely to encounter

people with more of the medical devices and other technology that can consider someone a Cyborg. As I mentioned in the above section, there are people who value and celebrate their identity as a Cyborg, which is something we need to assess and keep in mind as we are applying theory into our practices. I believe future research will be beneficial and necessary. Surveys and data collected on opinions regarding the use of the term cyborg, especially from people who are in the bioarchaeological field and actually have a disability, would present a wider range of perspectives, as well as more accurately represent those who do share these intersectional identities. As of right now, future researchers who wish to include cyborg in their work should be clear about its definitions and impact on those who are disabled and prolonging able-bodied ideologies.

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APPENDIX A: SURVEY

Consent Form:

Important Information you need to know:

My project is focusing on the term "Cyborg" and how professionals in the field of Bioarchaeology, Forensic Anthropology, and other related fields interpret its definition and whether it should be used in an academic setting or not. This survey consists of 9 questions consisting of both multiple choice and free response questions and should only last about 10-15 minutes of your time. There are no direct benefits given out for participants taking this survey and there are no known/anticipated risks.

Project Title and Purpose:

You are invited to participate in a research study in regards to the use of the term "Cyborg" in academia. This is a study to gauge public perceptions of this term.

Investigator(s):

This study is being conducted by Mara Stumpf, under the advisory of Dr. Sara Juengst in the Department of Anthropology at UNC Charlotte.

Description of Participation:

You will be asked to answer a series of questions in regards to your academic background, area of expertise, and your thoughts on the term "Cyborg" used in academic contexts. This information will be used in academic publications regarding perceptions of the human body.

Length of Participation

Your participation in this project will take about 10 minutes. This survey will be circulated for a month in the fall of 2022. No followup interviews will be needed.

Risks and Benefits of Participation:

There are no known risks to participation in this study. However, there may be risks which are currently unforeseeable. The benefits of participation in this study are a more in depth understanding of how society reacts to terms such as "Cyborg" in an academic context as it becomes more common to integrate technology into the body.

Volunteer Statement:
You are a volunteer. The decision to participate in this study is completely up to you. If you decide to be in the study, you may stop at any time. You will not be treated any differently if you decide not to participate or if you stop once you have started.

Confidentiality:
This survey is completely anonymous and any information about your participation, including your identity, will be kept confidential to the extent possible. No identifying information will be collected, therefore the researcher has no knowledge of the identities of those who complete it.

Fair Treatment and Respect:
UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the University's Office of Research Protections and Integrity (uncc-irb@uncc.edu) if you have any questions about how you are treated as a study participant. If you have any questions about the project, please contact Mara Stumpf (mstumpf1@uncc.edu) or Dr. Sara Juengst (sjuengst@uncc.edu).

Participant Consent
I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to participate in this research project.

By checking the following box, I understand and agree to the above Consent Form.

Survey Questions:

1. Who is your primary employer?
    1. University/College
    2. Governmental Institution
    3. Private Industry
    4. Other: _____
2. What is your highest Degree held?
    1. Bachelor's Degree (BA/BS)
    2. Master's Degree
    3. PhD
    4. MD
    5. Other: _____
3. What is your primary area of work?
    1. Bioarchaeology
    2. Forensic Anthropology
    3. Both
    4. Other: _____
4. Have you ever heard the term "Cyborg" used in science fiction contexts?
    1. Y/N
5. What images does this term in sci-fi contexts conjure?

    1. Free response
6. Have you ever heard the term “Cyborg” used in academic contexts?
    1. Y/N
7. What images does this term in academic contexts conjure?
    1. Free response
8. Would you ever use the term “Cyborg” in a Medical/Forensic/Bioarchaeological context?
    1. Y/N
9. Why or why not?
    1. Free response