

MOLDING UNDERSTANDING: A DISCOURSE ON FORENSIC  
ANTHROPOLOGY TECHNIQUES AND ARTISTIC PROCESS

by

EMILY WINSETT

A THESIS

Presented to the Department of Anthropology  
and the Robert D. Clark Honors College  
in partial fulfillment of the requirements for the degree of  
Bachelor of Arts

November 2024

## **An Abstract of the Thesis of**

Emily Winsett for the degree of Bachelor of Arts  
in the Department of Anthropology to be taken November 2024

Title: Molding Understanding: A Discourse on Forensic Anthropology Techniques and Artistic Process

Approved: Lawrence Ulibarri, Ph. D.  
Primary Thesis Advisor

Life and death are among the most confounding topics of discourse today. While many perceive life as a beginning and death as an end, I believe they are inherently linked. Death is a byproduct of life, but it does not signify its conclusion. After death, we carry on our narrative through our bones; the human skeleton embodies the history of our existence. This thesis explores the story of life as it is read through the bones. Through a research-based analysis of forensic anthropology strategies and a discussion of the technical methodologies involved in crafting ceramics, this project explores how the process of creating a ceramic skeleton offers a unique means of visualizing the scientific study of human remains. By merging the conceptual framework of forensic anthropology with the hands-on process of ceramic making, the work deepens our understanding of life and death. The act of sculpting each bone not only reflects the technical aspects of forensic analysis—such as the estimation of age, sex, and stature—but also serves as a meditation on the human condition. Through this approach, the ceramic skeleton becomes a powerful tool for exploring the intersections of life, death, and memory, allowing for an intimate and tangible engagement with the processes that define and preserve human existence.

## **Acknowledgements**

First and foremost, I want to express my deepest gratitude to Larry Ulibarri for introducing me to the world of biological anthropology. Your mentorship has been a cornerstone of my entire academic journey, and I truly cannot thank you enough for all you've done for me. Through your guidance, I've gained knowledge in osteology, learned the complexities of state laws, and uncovered the many ways nature shapes our bones. But more than that, you've given me the confidence and encouragement to pursue my passion for forensic anthropology. You've shown me the true meaning of mentorship—patience, honesty, compassion, and unwavering support. Your dedication to teaching and your love for anthropology have had a profound impact on me, and I will always be grateful for the gentle push you gave me to trust in my own potential. The time I have spent learning from you is the most valuable possession I have.

I am also incredibly thankful to Brian Gillis, who first saw my potential in ceramics during my second-ever class. You believed in me when I couldn't see it myself, and for that, I am forever grateful. You not only taught me the technical aspects of ceramics but also the heart and soul of the craft. Thank you for guiding me through every kiln firing, for sharing in the excitement when my piece was first displayed, and for celebrating that moment with the words, "You did it." Your kindness, sincerity, and vast knowledge have shown me what it means to be a true artist. You have lived a truly inspiring life and have shown me the importance of service through art, action, and knowledge. I am deeply appreciative of the time and energy you invested in me and my work.

Thank you to Christopher Michlig for your endless enthusiasm and inspiring spontaneity when it comes to creativity. In just one class, you helped me realize the value of my work and

taught me to maintain a keen eye for detail. You've shown me how to embrace my creative impulses and trust myself. Each of you—Larry, Brian, and Michlig—has taught me to trust my instincts, to take risks with my ideas, and to embrace the process of creation. You've shown me the importance of both discipline and play, and I will carry those lessons with me forever.

To my family, friends, and amazing classmates—thank you. I truly wouldn't be the person I am without all of you, and I am forever in debt to your love and support. To my parents, Robin and Cort Winsett, thank you for believing in me and supporting my decision to move 2,000 miles away from home to follow my dreams. Your constant reminder to follow my heart while using my head has been my compass throughout this journey. To my sister, Caky, thank you for always being there during my meltdowns, for your editing help on this and many other papers, and for being my lifelong mentor. I will never stop looking up to you. To my brother, William, thank you for your unwavering support and for always making me laugh when I need it most. You are my best friend and the ultimate comic relief. A special thank you to my partner, Sophie Paprocki, whose patience and love have carried me through every high and low. You've been my rock, literally picking me up off the ground and encouraging me to keep moving forward. Your support is beyond measure. To my dear friend Isabelle Clark, thank you for listening to all my ever-changing plans for this thesis, for being there for me no matter the hour, and for showing me what true dedication to one's craft looks like. To my grandparents, Robert and Cheryl Followell, your hard work and sacrifices have made it possible for me to receive this education, and I will forever be grateful. Nana, thank you for being the first person to introduce me to art. Your passion for painting and your constant pursuit of knowledge have inspired me in ways I can never fully express.

Sincerely, thank you to everyone who has been involved in this process from beginning to end. There were times when I didn't think I could accomplish this, but in my lowest moments, I was met with positivity, encouragement, and the belief that I could keep going. Your unwavering support has meant the world to me, and I could not have completed this without all of you by my side.

## Table of Contents

Chapter 1: Introduction	9
Chapter 2: Forensic Anthropology and a Biological Profile	12
Brief History of Forensic Anthropology:	12
Ethics, Methods, and Evidence	15
Ethics	15
Methods	15
Evidence	17
Forensic Analysis of Ceramic Skeleton	17
Ancestry	18
Sex	19
Age	21
Stature	24
Forensic Context	25
Chapter 3: Process and Methodology	26
Preface	26
Preliminary Ideation	26
Sketches	29
Technical Process	31
Long Bones	32
Pelvic Girdle and Shoulder Girdle	33
Thorax, Hands, Feet, Hyoid, and Patellas	36
Skull and Vertebrae	39
The Holes	44
Firing	45
Chapter 4: Assembly and Presentation	48
Chapter 5: Reflection and Concluding Remarks	50
Bibliography	53
Supporting Materials	
PDF: <i>Still Life</i>	

## List of Figures

Figure 1: <i>Watcher Bowl</i> (2019), A piece from Curran Wedner's ongoing series.	28
Figure 2: Large scale sketches of tibia (top) and femur (bottom).	31
Figure 3: Right and Left ceramic femur in beginning stages of detailing.	32
Figure 4: Os coxa in beginning stages of drying.	35
Figure 5: First twelve ribs in the beginning stages of drying.	36
Figure 6: First hand fully fired to cone 10.	38
Figure 7: Solid block of clay prior to being carved to create C1.	40
Figure 8: C1 vertebrae in wet stages before resting to dry.	40
Figure 9: C1 vertebrae completely bone dry.	40
Figure 10: Solid block of clay roughly shaped into skull shape.	42
Figure 11: Skull in the beginning stages of carving.	42
Figure 12: Preliminary skull carving complete, one of many phases of detailing.	43
Figure 13: All 114 remaining bones in the kiln prior to final single fire.	46
Figure 14: Ceramic Skeleton Hand at Thesis Defense presentation	49
Figure 15: Ceramic Skeleton Final Presentation	51

## **List of Tables**

Table 1: Ancestry Decision Tree	19
Table 2: Sex Estimation Using the Skull	21
Table 3: Age Decision Tree using Pubic Symphysis	23
Table 4: Age Estimation Categories	23
Table 5: NamUs Searchable Database of Missing Persons	24



## Chapter 1: Introduction

Anthropology encompasses various fields that examine humanity from different perspectives. Cultural anthropology investigates current social realities through ethnography, studying living individuals to explore their values, lifestyles, and cultural practices that connect or disconnect us globally.<sup>1</sup> Archaeology, on the other hand, focuses on the ancient past, investigating human prehistory by studying artifacts, ecofacts, and features left behind by earlier societies.<sup>2</sup> These remnants—whether metal buttons, charred remains from hearths, or traces of homesteads—offer glimpses into lives that time has largely erased.

Biological anthropology, another key branch, is concerned primarily with human evolution, analyzing both human and non-human remains.<sup>3</sup> This field combines elements of cultural and archaeological studies to uncover how humans evolved over time. Within biological anthropology, there is a specialized subfield dedicated to understanding what happens to individuals at the end of their lives: forensic anthropology. This area of study is particularly fascinating to me. It focuses on the examination of human remains to answer questions about death, identity, and the circumstances surrounding an individual's passing.

Through the creation of a ceramic model of the human skeleton, I aim to contribute to the ongoing conversation within biological anthropology, offering a unique exploration of the human experience as told through our bones. This piece delves into the profound question of what it means to be human by examining how our bones not only carry elements of the story of our lives but also serve as the final witnesses to our deaths. Our bones, which provide structure and

---

<sup>1</sup> Bernard, H. Russel. "Methods Belong To All of Us." *Assessing Cultural Anthropology*, edited by Robert Borofsky, Hawaii Pacific University, 1994, pp. 168–179.

<sup>2</sup> Klein, Richard G. "Archeology and the Evolution of Human Behavior." *Evolutionary Anthropology: Issues, News, and Reviews*, vol. 9, no. 1, 2000, pp. 17–36, doi:10.1002/(sici)1520-6505(2000)9:1<17::aid-evan3>3.0.co;2-a.

<sup>3</sup> American Association of Biological Anthropologists. "What is Biological Anthropology?" 2024. <https://bioanth.org/career/career-biological-anthropology/>.

movement throughout our lives, persist long after our internal organs cease to function. They hold the physical evidence of our existence—details of age, ancestry, sex, stature, pathology, anomaly, occupational markers, and trauma—that continue to tell a story even in death. By carefully crafting this skeletal form in ceramic, I seek to address the complex relationship between life and death and the ways in which our physical remains bear witness to both.

The process of creating this sculpture mirrors the investigative process of forensic anthropology, where human remains are meticulously examined to reconstruct the narrative of an individual's life and death. In forensic investigations, bones are often the only remaining markers of identity, providing critical clues about a person's life circumstances, health, and cause and manner of death. Similarly, this ceramic model aims to explore how the act of creation can mirror the act of discovery, where each detail of the sculpture offers a new insight into the story of the human body. My work raises the question: does our humanity end with death? I believe that humanity does not vanish at the moment of death but continues to echo through what remains of us. There is no definitive moment when we stop being human; the evidence of life persists in the bones that are left behind. Bones are the physical legacy of our lived experience—reflecting who we were before birth, who we were during life, and even who we are after death. Through this artwork, I hope to shed light on the ways in which the human body's physical remnants can transcend the finality of death, continuing to tell our stories long after we are gone.

This thesis is composed of approximately 178 hand-sculpted porcelain bones, a figure notably fewer than the 206 bones found in a typical adult human skeleton. Although this model is not an exact replica, it closely resembles the structure of a human skeleton despite being made from kaolin, feldspar, and silica rather than the protein, collagen, and minerals that compose real

bones.<sup>4,5</sup> Each bone is carefully crafted and designed to evoke the tactile presence of the human form, yet, as a ceramic object, it remains a mediation between reality and interpretation. The process of hand-sculpting each individual bone allows me to reflect on the intricate details of the human body and its symbolic significance—both as a physical entity and as a vessel for identity, memory, and history. By using porcelain, a material traditionally associated with fragility and refinement, I emphasize the delicate balance between life and death, strength and vulnerability, while inviting the viewer to reflect on the continuity of human existence through the silent yet powerful presence of the skeletal form.

*Still Life* is a thought-provoking sculpture addressing our human desire to learn more about death. Though its appearance is grim, my work aims to shine a light on the beauty of bones and the life that exists after death. Drawing from my intimate relationship with grief, I made this piece to express the myriad of emotions that accompany any loss: pain, confusion, regret, longing, love, and peace. Using a forensic analysis of the sculpture, I bridge the gap between logic and emotion to humanize my work. I invite viewers to confront the depths of their own losses and discover solace amidst fractured memories and unspoken words. While loss is inevitable, there is still life.

---

<sup>4</sup> National Institute of Arthritis and Musculoskeletal and Skin Diseases, “What Is Bone?” U.S. Department of Health and Human Services, 13 July 2023, [www.niams.nih.gov/health-topics/what-bone#:~:text=Bone%20is%20made%20of%20protein,the%20bone%20can%20resist%20breaking.](http://www.niams.nih.gov/health-topics/what-bone#:~:text=Bone%20is%20made%20of%20protein,the%20bone%20can%20resist%20breaking.)

<sup>5</sup> Mogutable, “Guide: Ceramic Pottery vs. Porcelain.” *Mogutable*, 18 Nov. 2021, [mogutable.com/blogs/news/guide-ceramic-pottery-vs-porcelain](http://mogutable.com/blogs/news/guide-ceramic-pottery-vs-porcelain). Accessed 4 Oct. 2024.

## **Chapter 2: Forensic Anthropology and a Biological Profile**

### **Brief History of Forensic Anthropology:**

Forensic anthropology is a relatively recent field of study, gaining prominence primarily in the 19th century. Its formative period, spanning from the 1800s to the 1940s, is characterized by a scarcity of formally trained anthropologists and a lack of substantial scholarly publications within the scientific community. During this time, individuals engaged in what would later be termed “forensic anthropology” were predominantly anatomists, physicians, and university professors, many of whom had limited involvement in medico-legal cases of significance.

A pivotal moment in the field’s development came with the infamous Parkman murder of 1849. Dr. George Parkman, a wealthy Bostonian and frequent lender, was murdered by Professor John Webster, who had borrowed a substantial sum from Parkman and was being sued for six times the amount. After inviting Parkman to his office to discuss the matter, Webster claimed Parkman vanished without a trace. However, the discovery of decomposed human remains hidden in the walls of Webster’s office led authorities to call upon anatomy experts and a dentist to assist in the investigation. Through their analysis, the remains were identified as those of Dr. Parkman, and further evidence—a matching tooth found in Webster’s furnace—ultimately led to Webster’s conviction for murder. This case marked the first instance in which experts in human anatomy were formally involved in a medico-legal investigation, laying the foundation for the integration of anatomical science into legal proceedings.

The field advanced further in 1897, when anthropologist George Dorsey was called to testify in the trial of Adolph Luetgert, the “sausage vat murderer.” This trial is considered the first time an anthropologist was officially enlisted to assist in a medico-legal case, marking a

significant milestone in the professionalization of forensic anthropology.<sup>6</sup> Towards the end of this period, pioneers in the field of forensics began to make significant strides in emphasizing the importance of anthropological evaluation in death investigations. Thomas Dwight, an anatomy professor, is often considered the father of forensic anthropology following the publication of his work “The Identification of the Human Skeleton: A Medicolegal Study” (1878). In this groundbreaking study, Dwight outlined methods for estimating sex, age, and stature using human remains, laying the foundation for the field.<sup>7</sup>

From the 1940s to the 1970s, forensic anthropology began to gain significant traction. During this time, military agencies recognized its value in identifying soldiers lost in combat. The Second World War and the Korean War, in particular, provided anthropologists with opportunities to demonstrate the critical role of skeletal analysis in rapid identification. The methods developed during this period continue to be essential tools in mass casualty events and disaster victim identification. A key figure in this development was Wilton Marion Krogman, whose influential 1962 publication, *The Human Skeleton in Forensic Medicine*, became a foundational text for the field. Additionally, forensic anthropology gained recognition within the medicolegal community, providing families of missing persons, unidentifiable individuals, and homicide victims with much-needed closure.

In the years following the 1970s, forensic anthropology solidified its place in the professional realm when it became formally recognized by the American Academy of Forensic Sciences (AAFS). Soon after in 1977, the American Board of Forensic Anthropology (ABFA),

---

<sup>6</sup> Loerzel, Robert. *Alchemy of Bones Chicago's Luetgert Murder Case of 1897*. University of Illinois Press, 2003. pg 3.

<sup>7</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019. Pg 2.

was founded creating a pathway to certification as a forensic anthropologist. This nonprofit organization only certifies individuals who demonstrate extraordinary expertise in the field, and since its inception, only around 150 diplomates have been recognized.<sup>8</sup> This era also saw a surge in research, education, and employment opportunities for forensic anthropologists, allowing for greater specialization and widespread awareness of the field.<sup>9</sup> This institutional recognition helped elevate forensic anthropology as a distinct and credible discipline within both the academic and professional worlds.

Today, forensic anthropology is an integral part of death investigations, playing a role in nearly every circumstance involving human remains. The expansion of standardized practices and guidelines through organizations like the Scientific Working Group for Forensic Anthropology (SWGANTH) and the Organization of Scientific Area Committees (OSAC) has further solidified its position<sup>10</sup>. The field has also gained significant visibility through media representations in television, film, and true crime coverage. However, the field remains highly competitive. Although the demand for forensic anthropologists has grown, it requires many years of advanced education and specialized training to acquire the necessary expertise to practice professionally. The ABFA certification, while not mandatory, remains a significant achievement, though it is widely regarded as nearly impossible to obtain due to the rigorous standards and the limited number of practitioners certified.

---

<sup>8</sup> “Active Diplomates (by State): The American Board of Forensic Anthropology.” *The ABFA*, [www.theabfa.org/active-diplomates-by-state](http://www.theabfa.org/active-diplomates-by-state). Accessed 9 Nov. 2024.

<sup>9</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.

<sup>10</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.

## **Ethics, Methods, and Evidence**

### *Ethics*

The specialization of forensic anthropology grants practitioners the authority to conduct medicolegal investigations on human remains, a responsibility not shared by other subfields of anthropology. However, with this privilege comes the imperative to adhere to a strict code of ethics, which ensures that practitioners maintain the high level of expertise required for this work. This code of ethics mandates a commitment to professionalism, adherence to the scientific method, and compliance with state and federal laws, as well as the guidelines established by recognized forensic anthropology organizations, which were discussed earlier.<sup>11</sup> These ethical standards are essential for ensuring that forensic anthropologists uphold the integrity of their practice and contribute to the reliability of the medicolegal process.

### *Methods*

There are numerous methods employed in forensic investigations, but here I will highlight a select few that share similarities with the processes involved in ceramic production. One of the initial steps in a forensic investigation is the cleaning of bones. Common cleaning techniques include the use of chemicals, dermestid beetles, boiling water, and, in some cases, the careful scraping of any remaining flesh from the bone using specialized tools.<sup>12</sup> This step is crucial, ensuring that the bone surface is clearly visible and free from contaminants such as dirt, fluids, or tissue, which could obscure or mimic bone damage or irregularities. By cleaning the

---

<sup>11</sup> Passalacqua, Nicholas, et al. "Forensic anthropology as a discipline." *Biology*, vol. 10, no. 8, 21 July 2021, p. 691, <https://doi.org/10.3390/biology10080691>.

<sup>12</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.

bones thoroughly, the investigator can examine the skeletal remains with greater accuracy, facilitating more reliable conclusions.

Additionally, the bones are often reconstructed, sorted, and reassembled to allow the anthropologist to clearly assess any damage to the individual and to develop a more accurate biological profile. A biological profile is essentially a summary of an individual's biological characteristics that anthropologists use to identify individuals who may be too decomposed or distorted to be identified by next of kin. It is generally recommended that human remains not be glued together during reconstruction, as this ensures that each bone and fragment can be examined independently.<sup>13</sup> However, in some cases, a trained conservator may use resin or other adhesives to reconstruct a bone to its original appearance before trauma. This approach allows for a more precise understanding of the bone's original form and condition.

Furthermore, it is crucial to emphasize the importance of safety precautions when handling human remains, as they pose various hazards both in the field and in the laboratory.<sup>14</sup> Protective measures, such as the use of latex gloves and closed-toe shoes, are essential to minimize exposure to contaminants. Eye and face protection should also be worn to guard against bodily fluids or potentially harmful chemicals.<sup>15</sup> In some laboratory settings, ventilation hoods are employed in conjunction with personal protective equipment to reduce the risk of inhaling airborne particles or pathogens, further ensuring the safety of the investigator.<sup>16</sup>

---

<sup>13</sup> Fletcher, Alexandra, et al. "Collection Care." *Regarding the Dead: Human Remains in the British Museum*. British Museum, 2015.

<sup>14</sup> Roberts, Lindsey G., et al. "An Update on the Hazards and Risks of Forensic Anthropology, Part I: Human Remains." *Journal of Forensic Sciences*, vol. 61, no. S1, Jan. 2016, pp. S5-S13. doi:10.1111/1556-4029.12947.

<sup>15</sup> OSHA. "Health and Safety Recommendation for Workers Who Handle Human Remains." *Occupational Safety and Health Administration Fact Sheet*, 2005.

<sup>16</sup> Galloway, A, and JJ Snodgrass. "Biological and chemical hazards of forensic skeletal analysis." *Journal of Forensic Sciences*, vol. 43, no. 5, 1 Sept. 1998, pp. 940-948, <https://doi.org/10.1520/jfs14338j>.



## *Evidence*

In forensic anthropology, skeletal remains are considered vital evidence, serving as a primary source of information in death investigations.<sup>17</sup> The bones of an individual contain details of their life, acting as a tangible record of their biological and cultural history. It is essential to acknowledge that, as evidence, skeletal remains must be handled with great care and in accordance with established protocols. Forensic anthropologists must adhere to strict procedures to ensure the integrity of the remains, respect for the individual, and the safety of the investigator, all while contributing to a thorough and scientifically sound case analysis.

### **Forensic Analysis of Ceramic Skeleton**

Forensic anthropology involves examining found remains to estimate a person's identity. In the case of my ceramic sculpture, many people have asked: Who are they? To personalize the remains and approach this from a more analytical perspective, I assessed their sex, ancestry, stature, and identity to better understand who they were in life and in death. I utilized reference images in multiple textbooks and studies and compared them to my physical ceramic samples, which were not created with an intended set of features but rather developed the identifying characteristics through process and firing. While this analysis is theoretical—given that these bones are ceramic and have undergone significant changes during sculpting and firing—I believe it's important to apply my forensic knowledge, nonetheless.

---

<sup>17</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.

## *Ancestry*

Using the Optimized Summed Score Attributes System, I estimated the individual's ancestry through six key cranial points.<sup>18</sup> I analyzed the anterior nasal spine, inferior nasal aperture, interorbital breadth, nasal aperture width, nasal bone structure, and post-bregmatic depression. The anterior nasal spine scored 1, the inferior nasal aperture scored 2, the interorbital breadth scored 1, the nasal aperture width scored 2, the nasal bone structure scored 4, and the post-bregmatic depression scored 0. Based on this analysis, I estimated the individual's ancestry as likely European American or white, with a probability value of 90%, by following a decision tree for estimating ancestry (Table 1).

---

<sup>18</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.

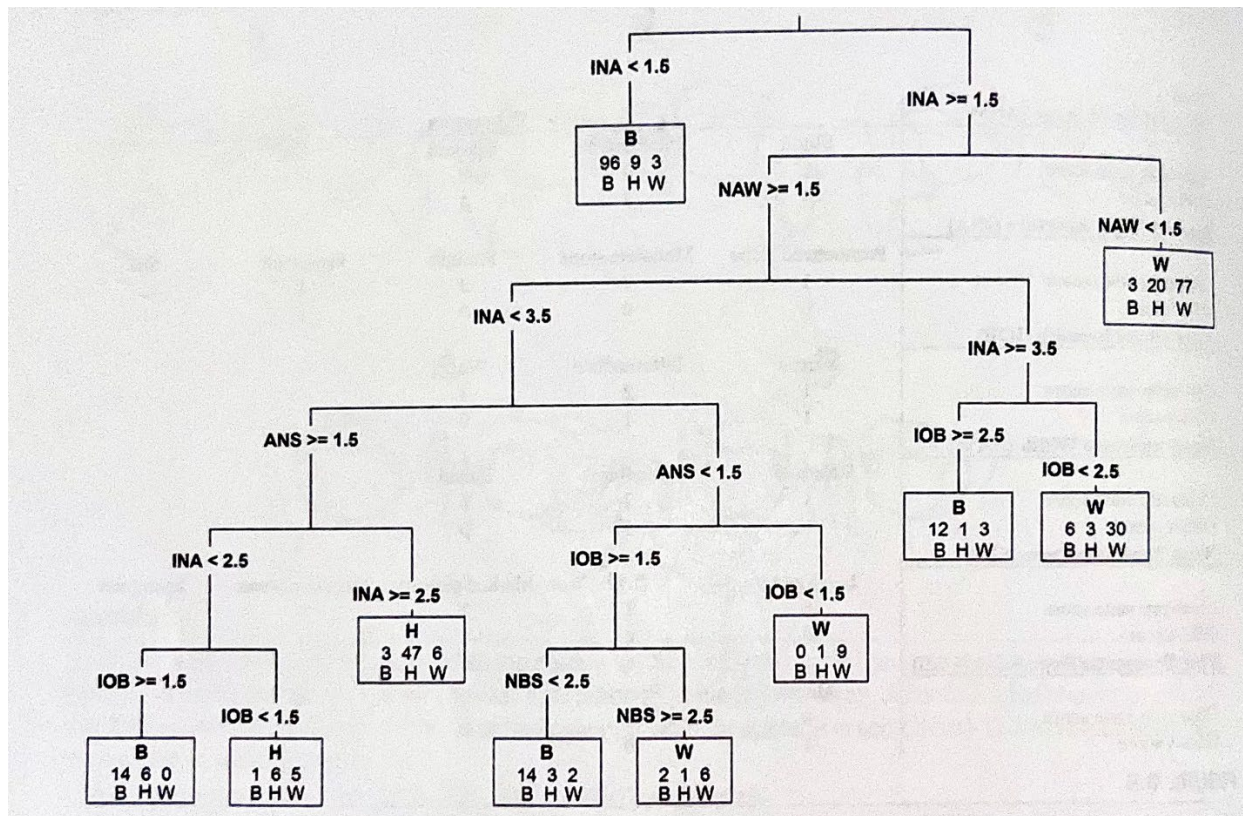


Table 1: Ancestry Decision Tree

Decision tree using nonmetric traits for estimating ancestry from Christensen, Angi M., et al.

*Forensic Anthropology: Current Methods and Practice.*

## Sex

Using the skull, I measured the robusticity of the nuchal crest, mastoid process, supraorbital margin, supraorbital ridge, and mental eminence. Although these measurements are not precise, I used a scale of one to five based on Walker, Buikstra, and Ubelaker's cranial sexing qualitative scoring system for sexually dimorphic features (Table 2).<sup>19</sup> My findings indicate that the nuchal crest scored 1, the mastoid process scored 1, the supraorbital margin scored 2, the supraorbital ridge scored 2, and the mental eminence scored 3. Based on these

<sup>19</sup> White, Tim D., et al. *Human Osteology*. Academic Press, 2011.

features and using CHAID analysis decision tree methodology, I determined that this individual was likely female.<sup>20</sup>

To further assess sex, I analyzed the right os coxa at specific points: the ventral arc, subpubic concavity, ischiopubic ramus, and greater sciatic notch. The left os coxa was not evaluated due to its extreme level of shrinkage, warping, and smoothing during to kiln firing. My analysis indicated female characteristics due to the presence of a ventral arc and the subpubic concavity, which are typically found only in females. However, the lack of a sharp edge on the medial aspect of the ischiopubic ramus and the relatively straight, narrow greater sciatic notch made the pelvic sexing inconclusive. Still, a rough estimation of femoral head diameters revealed that the femoral head measures approximately 44.45 mm, consistent with female individuals.

---

<sup>20</sup> White, Tim D., et al. *Human Osteology*. Academic Press, 2011.

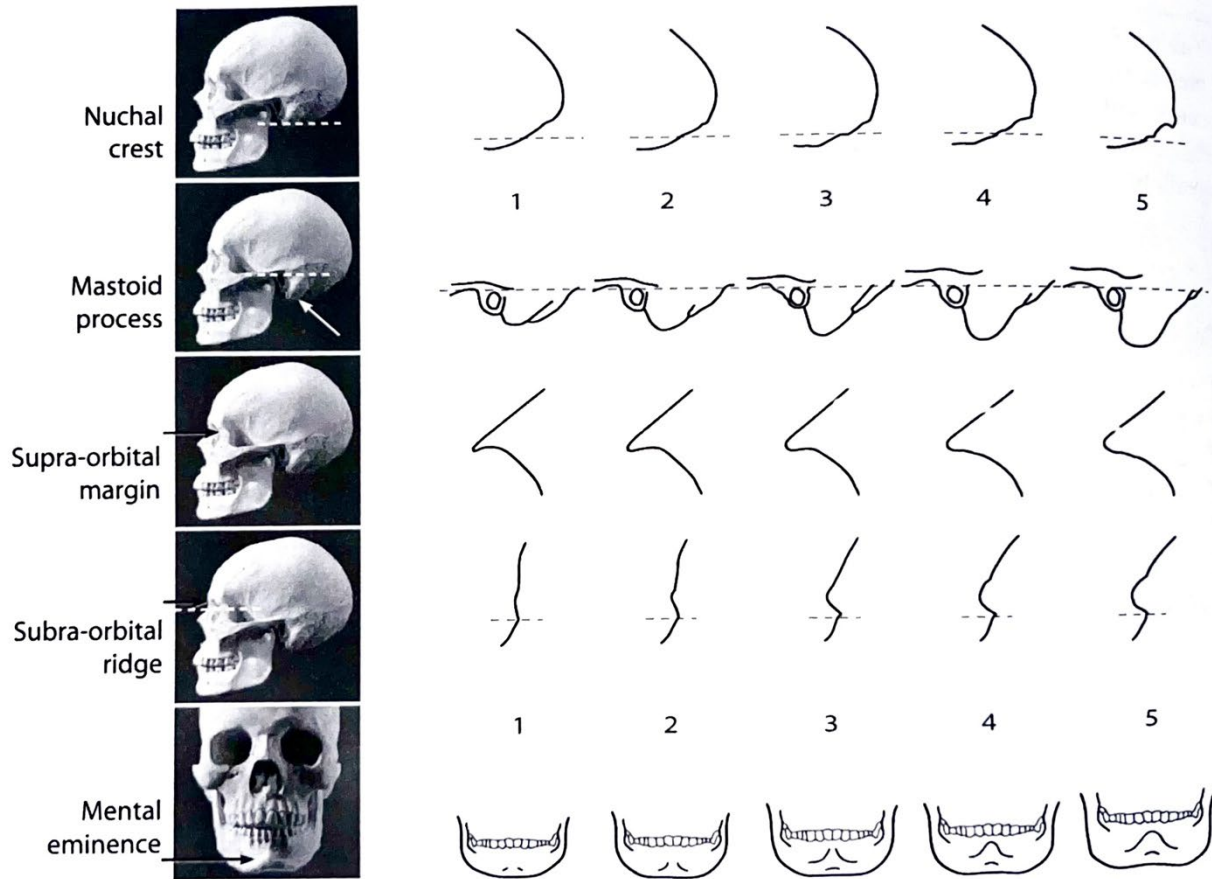


Table 2: Sex Estimation Using the Skull

Cranial sexing qualitative scoring system for sexually dimorphic features from White, Tim D., et al. *Human Osteology*.

## Age

Age estimation of the ceramic skeleton proved challenging due to the smoothing of detail caused by handling and firing. Despite these challenges, I made every effort to analyze the ceramic bones for consistent age indicators. One of the most widely used methods in forensic anthropology for age estimation involves examining the pubic symphysis of the os coxae.<sup>21</sup> In

<sup>21</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.

the case of the right ceramic os coxa, there is relatively little billowing on the pubic symphysis, which suggests the individual's age falls within the range of 24 to 58 years, according to the six-phase Suchey-Brooks system.<sup>22</sup> However, when analyzed using a newer, component-based system for pubic symphysis age estimation, the individual appears to be between 25 and 32 years old. This newer system considers various features of the pubic symphysis, including the pubic tubercle, ossific nodule, billowing, ventral rampart formation, and dorsal plateau formation.<sup>23</sup>

Further analysis of the sternal end of the ribs provides additional insights, indicating that the individual was likely between 24 and 27 years old.<sup>24</sup> The sternal end is smooth and curved with minimal scalloping, and the shallow but visible indentation, along with the firmness and smoothness of the bone, suggests that the individual was likely a young adult. In addition, the complete absence of visible cranial sutures suggests that the individual may have been older, possibly in their 40s or 50s. However, the use of cranial suture closure as a method for age estimation is widely debated. Research has shown that chronological age does not always correlate accurately with cranial suture closure, and cranial sutures are more closely related to brain and connective tissue development than to age itself.<sup>25</sup> While cranial sutures can provide a rough estimate of age, they are generally considered a more imprecise tool for determining age. Still, in cases where the sutures are fully closed or obliterated, this method can offer a broad

---

<sup>22</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.

<sup>23</sup> Dudzik, Beatrix, and Natalie R. Langley. "Estimating age from the pubic symphysis: A new component-based system." *Forensic Science International*, vol. 257, Dec. 2015, pp. 98–105, <https://doi.org/10.1016/j.forsciint.2015.07.047>.

<sup>24</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.

<sup>25</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.

indication of advanced age. Based on all the indicators, the remains are likely those of an individual between 24 and 27 years old.

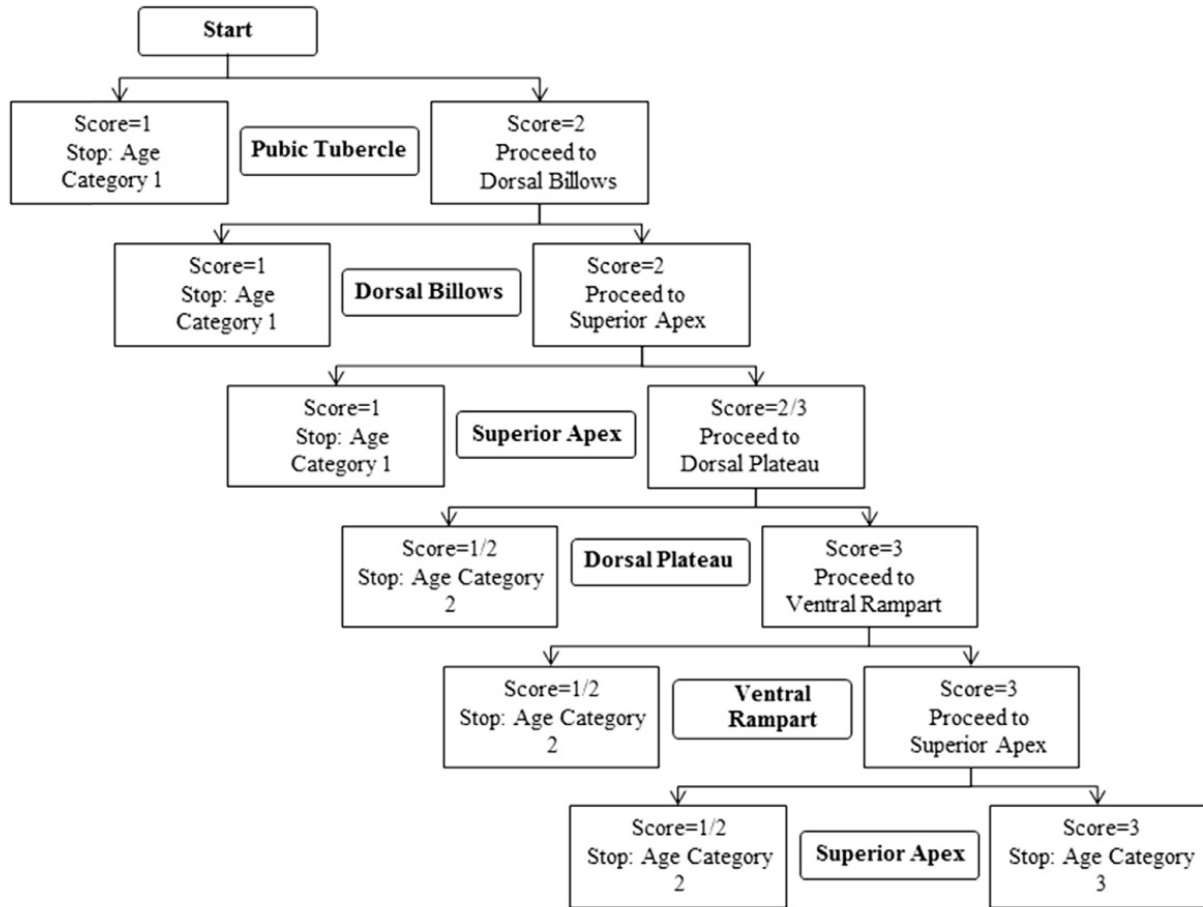


Table 3: Age Decision Tree using Pubic Symphysis

Flow chart decision tree of pubic symphysis features from Dudzik, Beatrix, and Natalie R. Langley (2015).

Age category	Age interval
1	18–24
2	25–32
3	33–40

Table 4: Age Estimation Categories

Age categories and ranges derived from Dudzik, Beatrix, and Natalie R. Langley (2015) new component for age estimation system.

## Stature

Using femoral measurements is a reliable method for estimating overall stature and is widely used in forensics cases where the skeletal remains of an entire individual are not present. Despite having all skeletal remains present, I used the femoral measurements to quickly estimate stature. I measured the femur at roughly 23.5 inches (59.69 cm) and applied the formula for European American females:  $2.47 \times (\text{femur length}) + 54.10 \pm 3.72$ .<sup>26</sup> This calculation indicated a height range of approximately 205.25 cm to 197.81 cm, or between 6 feet 8 inches and 6 feet 5 inches tall. Since sex is undetermined, I repeated the same process using the formula for European American males:  $2.38 \times (\text{femur length}) + 61.41 \pm 3.72$ . This would alter the height range to be between 200.20 cm to 206.74 cm, or 6 feet 6 inches to 6 feet 9 inches. This data indicates that the individual is likely between 6 feet 5 inches and 6 feet 9 inches.

Case Number	DLC	Legal Last...	Legal Fir...	Missing A...	City	County	State ...	Biological...	Race / Ethnicity	Date M..
MP71555	04/27/2020	Duncan	Susanna	22 Years	Austin	Travis	TX	Female	White / Caucasian	02/26/2024
MP57763	05/08/2015	Rivadeneyra	Estefani	15 Years	Philadelphia	Philadelphia	PA	Female	Multiple	01/07/2020
MP28502	04/16/2015	Loza Salazar	Everaldo	16 Years	McAllen	Hidalgo	TX	Male	Multiple	08/20/2024
MP86535	03/18/2015	Tarsaen	Emily	16 Years	Riverside	Riverside	CA	Female	White / Caucasian	02/02/2023

Table 5: NamUs Searchable Database of Missing Persons

List of Missing Persons found in the NamUs database with height between 6ft 5in and 6ft 9in, age between 24-27, unknown sex, and European American ancestry.

<sup>26</sup> Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.



## *Forensic Context*

To contextualize my biological profile within the current forensic framework, I have inputted my findings into the National Missing and Unidentified Persons System (NamUs)<sup>27</sup>. At present, four unresolved missing persons cases align with the characteristics of the ceramic skeleton (Table 5). The notably tall stature significantly narrows the pool of potential matches, reducing what could have been thousands of missing persons and unidentified remains to a much smaller number.

This highlights the crucial role of forensic techniques in real-world applications, particularly in the identification of unknown human remains. Forensic anthropology, through the detailed analysis of skeletal remains, offers valuable insights into the biological and personal history of individuals. These details can significantly aid professionals in narrowing down the identity of the deceased, ultimately facilitating the resolution of missing persons cases and providing closure for grieving families. While my ceramic skeleton is a fabricated model, even a basic forensic analysis of such remains can yield meaningful results. These results, though derived from an artificial source, underscore the potential of forensic science to identify individuals, reunite families, and provide essential answers. The application of such techniques in real-world contexts—whether in criminal investigations, disaster response, or historical research—demonstrates the profound impact forensic science has on justice, humanitarian efforts, and the preservation of human dignity.

---

<sup>27</sup> NamUs, “Missing Persons Case Search,” *National Missing and Unidentified Persons Database*, [namus.nij.ojp.gov/](https://namus.nij.ojp.gov/).

## Chapter 3: Process and Methodology

### Preface

This thesis is rooted in a process of hands-on creation, reflection, revision, and documentation. The work presented here is deeply personal, born from my own experiences and emotions. My decision to hand-sculpt arises from a need to express feelings that often unfold in non-linear, complex ways. Every curve, texture, and form in this piece reflects the journey of my thoughts and emotions, capturing both moments of vulnerability and resilience. Through this work, I aim to invite the audience into a shared space of introspection, encouraging them to explore their own interpretations. My hope is to spark a dialogue between the artwork and the viewer's personal experiences, creating a connection that resonates on a deeper level and allowing individuals to discover their own meanings and reflections within the piece.

This chapter outlines the step-by-step process of creating my thesis work: from the initial ideation and the sources of inspiration to the development of subsequent pieces, sketches, and technical investigations. I will also address the challenges and shortcomings I encountered while working on my ceramic sculpture, *Still Life*, reflecting on how these obstacles shaped the evolution of the piece and my growth as an artist.

### Preliminary Ideation

My primary intent in creating this thesis was to evoke emotions of grief, loss, and connection—feelings that are often difficult to articulate, yet are universal in their resonance. The skeleton, a form that carries deep symbolic weight, became central to this exploration. However, I consciously chose to distance my work from the typical pop culture associations of

skeletons—piracy, horror, absurdity, or the monster. Instead, I aimed to present the skeleton as a more intimate, reflective presence, inviting viewers to engage with it in a more contemplative and nuanced way. It was important to me that the piece held space for others to draw their own conclusions and interpretations, without rushing them into a particular emotional response. I wanted this process of engagement to unfold over time, allowing each viewer to come to their own personal understanding of the work.

Oftentimes, skeletons are depicted in ways that strip them of their humanity, reducing them to mere symbols of death, fear, or spectacle. In horror films, for instance, skeletons are frequently cast as villains—malevolent, undead forces that seek to destroy life or haunt the living. They embody the supernatural, existing as terrifying reminders of mortality, often acting as vessels for evil or death itself. Myths like that of the Grim Reaper utilize the skeleton as a harbinger of doom, an inevitable force that stalks the living, waiting to escort souls into the underworld. In these portrayals, the skeleton becomes something to be feared, **the** embodiment of an irreversible transition from life to death.

Conversely, skeletons also appear in lighter, more comedic contexts, where they are anthropomorphized and treated as characters in their own right. In media like *The Addams Family* or *The Nightmare Before Christmas*, skeletons are presented as quirky, sometimes endearing figures who have their own personalities and even lead normal, albeit eccentric, lives. These portrayals remove the skeleton from its traditional association with death and decay, instead positioning it within a framework of humor and absurdity. Despite its association with death, the skeleton is rendered relatable, even charming, in the context of these fictional universes. However, in doing so, these depictions also diminish the weight of death itself, softening its reality and turning it into a source of comedy or a device for lighthearted escapism.

This duality—the skeleton as both a source of terror and a figure of comedic relief—reflects how society grapples with the concept of death. On one hand, we fear it, trying to distance ourselves from its finality by making skeletons into monsters or supernatural agents of destruction. On the other hand, we laugh at it, using skeletons in cartoons and comedy to alleviate existential anxiety and to diminish the emotional burden of loss. In my work, I sought to reclaim the skeleton from these cultural narratives. By focusing on the ceramic medium and handcrafting each individual bone, I aim to revive the skeleton’s inherent humanity, reminding the viewer that it is not simply a symbol of the end but also a part of life itself.



Figure 1: *Watcher Bowl* (2019), A piece from Curran Wedner’s ongoing series.

I drew inspiration from the ceramic artist Curran Wedner of Canopic Studios, whose porcelain vessels are adorned with ceramic human forms. Wedner's work strikes a delicate balance between grace and eeriness, with glossy, oozing black glazes creating an unsettling sense of beauty (Figure 1).<sup>28</sup> His use of porcelain clay, a medium known for its fragility and refinement, imbues his pieces with a paradoxical tension—delicate yet powerful, elegant yet discomfiting. This contrast in his work led me to embrace the inherent spookiness of the skeletal form while maintaining a careful approach to how it would be received by its audience. The use of mostly unglazed porcelain in my piece gives it a soft, vulnerable quality, while the strength of the material itself, combined with the delicate nature of the form, conveys a profound emotional depth. In this way, my work, much like Wedner's, seeks to evoke a sense of unease, but also a quiet reverence for the fragility of life and death.

## **Sketches**

In my project's initial stages, it was nothing more than an old sketch book filled with osteological references I drew whilst studying for my first forensic anthropology exam. Each page contained a different bone, meticulously scaled to fit the 5x7-inch parameters of the journal, leaving enough space to label every node, tubercle, and surface. This sketchbook was my constant companion throughout every forensics class, its drawings providing me with a deep sense of understanding and connection to the subject matter. As I transitioned into creating the ceramic skeleton, these sketches served as a foundation for the conceptual direction of my piece. I had the anatomical knowledge to make these forms physically accurate, but I also began to

---

<sup>28</sup> LaSane, Andrew. "Human Anatomy and Oozing Black Glazes Cover Ceramics by Canopic Studio." *Colossal*, 13 Oct. 2019, [www.thisiscolossal.com/2019/10/human-anatomy-ceramics-by-canopic-studio/](http://www.thisiscolossal.com/2019/10/human-anatomy-ceramics-by-canopic-studio/).

question whether strict accuracy was mandatory, or if there was room for artistic expression and personal authenticity in the creation of these pieces.

I decided to give myself permission to explore. I filled new sketchbooks with whimsical, death-related objects—things like phalange cups, femur lamps, and a cereal bowl made of teeth. I made ceramic teeth and eyes ten times the size of real ones and sculpted fleshy forms with no anatomical accuracy. I spent hours on the wheel, throwing cups, vases, and bowls, only to smash them in frustration before they even had the chance to dry. Weeks passed in a haze of experimentation, where I tried to navigate the expansive possibilities ceramics offered, balancing my own absurd ideas with suggestions from classmates who encouraged me to approach the skeleton with less rigidity. While this phase was undeniably playful, it ultimately felt unfulfilling, and I realized I had strayed from my original intentions.

At a certain point, I stepped back and decided to simplify my approach. I returned to my sketchbook and began measuring my own body—taking rough measurements of my femur, tibia, fibula. Drawing on the anatomical sketches I had studied for three years, I transferred these forms to large sheets of cheap white paper, scaling them to my own proportions. This process of translating my personal measurements into the drawings felt like a return to the core of my concept. But then, a key principle of working with clay resurfaced in my mind: clay shrinks when fired. I realized that I would need to account for this shrinkage in my sculptures, so I recalculated the dimensions of my pieces, adjusting them to ensure they would shrink to the correct size in the kiln. With that in mind, I re-drew everything, rethinking each piece with both precision and intention. The end-result was a series of large sketches, seemingly huge compared to myself, that I could use to mold the clay into position with ease (Figure 2).

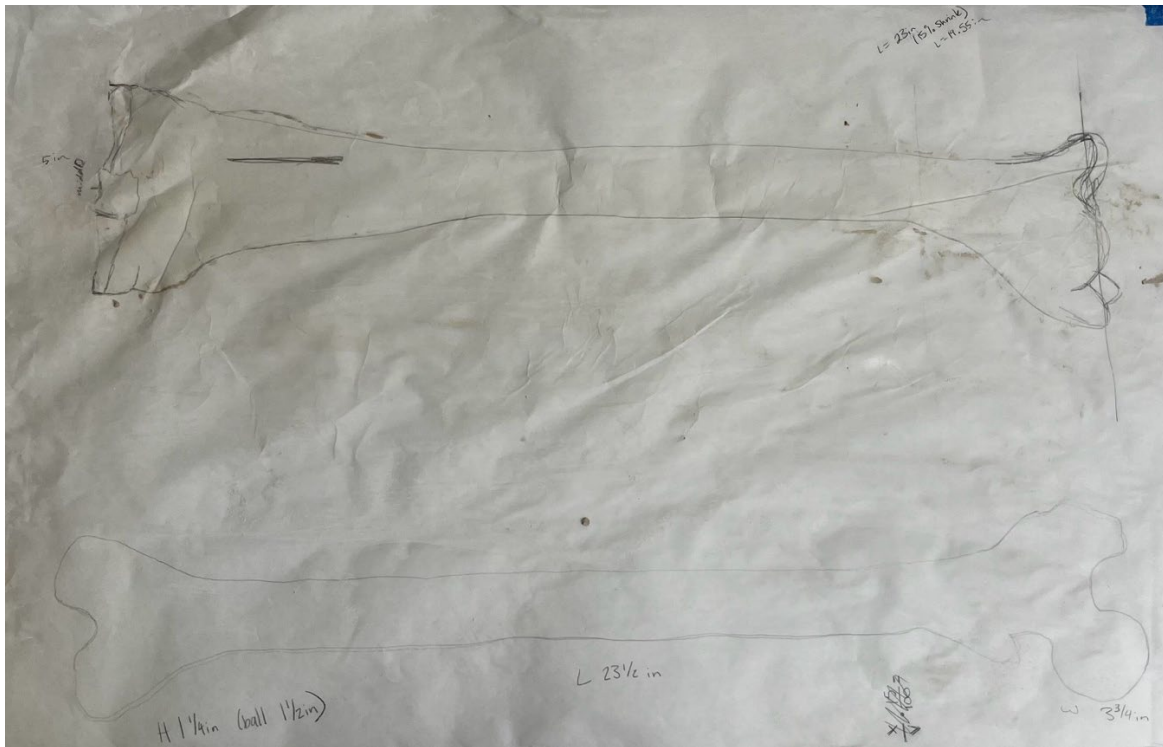


Figure 2: Large scale sketches of tibia (top) and femur (bottom).

## Technical Process

In all honesty, my approach to crafting the ceramic bones was quite experimental, and much of my technique was developed through trial and error. I explored various methods for shaping the bones, including extruding coils, slab rolling, and even experimenting with mold making. However, I found that the techniques I gravitated toward were the simplest: pinching and scraping. Each bone was formed by transferring the dimensions from my scaled sketches onto the clay. Using pinching, pulling, and rolling techniques, I carefully manipulated the material to match the shapes I had drawn, allowing the form to emerge organically from the clay. The physical process of creating the bones required approximately 700 hours of work stretched over a period of 7 months.

## *Long Bones*

The general process of shaping each long bone by hand took between 30 to 90 minutes. English porcelain, known for being a particularly challenging clay to manipulate, presented its own set of difficulties. When working with porcelain, the clay starts out firm and difficult to mold, so each block I cut required additional preparation. I first wedged the clay on a plaster table for about five minutes to soften it, making it more pliable and easier to work with. For the femurs, I began by cutting approximately 10 pounds of porcelain clay, which I then rolled into a long coil and laid flat against my scaled drawing. Using my hands, I gently pinched, pulled, and rolled the clay into the basic shape of the femur. Porcelain becomes softer the longer it is worked, and the more water is added, so my technique of pushing and rolling the clay caused it to soften significantly once the general shape was established. This necessitated allowing the bone forms to rest for anywhere from 24 to 72 hours before I could proceed with adding finer details.



Figure 3: Right and Left ceramic femur in beginning stages of detailing.



Once the clay had hardened but had not yet reached a leather-hard state, I rewet the surface with a damp sponge, enabling me to continue shaping and refining the form. To preserve the femur's natural cylindrical shape, I frequently flipped the piece to avoid any distortion from resting flat for too long. I employed a variety of tools, including a needle tool, a metal and wooden rib, and several loop tools, to add details to the bone. For example, the femur has approximately 27 anatomical landmarks including ridges, lines, and areas for muscle and ligament attachment.<sup>29</sup> The wooden rib was especially useful for creating the straight lines and ridges along the shaft of the femur, mimicking the texture found on real bones (Figure 3). The loop tools enabled me to carefully remove excess clay, helping to define the head of the femur, its neck, greater trochanter, and lesser trochanter. As for the needle tool, that was used to make minute details like the nutrient foramen and texture on the medial and lateral epicondyle. This process was repeated on all the long bones, referencing my sketch book drawings and my textbooks to ensure details and siding were all accurate.

### *Pelvic Girdle and Shoulder Girdle*

Although the bones of the hips and shoulders differ significantly in their appearance, I employed similar techniques for creating the ceramic replicas of these structures. The pelvic girdle consists of the sacrum, coccyx, and os coxae, while the shoulder girdle comprises the clavicle and scapula. For all these bones, I used an unusual approach to the slab method. Rather than utilizing a slab roller to thin large blocks of clay, I cut thick, 10-pound slabs from a wet clay bag and manually pounded them flat. While a rolling pin could have easily and evenly flattened the clay with less effort, I chose this method because it allowed for more tactile control. This was particularly important because the bones in these areas of the body do not have consistent widths.

---

<sup>29</sup> White, T. D., and Pieter A. Folkens. *The Human Bone Manual*. Academic, 2005.

Using a rolling pin would have made the slabs too thin and too flexible for the detailed curving and shaping required later in the process.

Once I achieved the desired slab thickness, approximately one inch, I traced my previously made sketches onto the clay using a fettling knife and a needle tool. This allowed me to shape the slabs to the basic outlines of the bones. For the os coxae, I carved the slabs into an ear-like shape and cut a hole in the center to represent the obturator foramen. After this, I allowed the piece to rest for 36 hours before placing one half on a dry sponge to facilitate the natural curvature of the os coxae (Figure 4). The ilium rested on the sponge, the ischium on the table, and paper was used to support the pubis. Once I had established the correct curves of the os coxae, I allowed the piece to harden for another 36 hours.



Figure 4: Os coxa in beginning stages of drying.

Next, I used a ribbon tool and a wooden trimming tool to remove excess clay and refine the details. The acetabulum, which forms the socket of the hip joint, was added later by scoring the hardened clay with a needle tool and applying coils of wet clay with slip. The needle tool was then used to carve detailed markings on the os coxae. This process was repeated for all the other bones in the pelvic and shoulder girdles. Dry sponges and paper served as supports throughout, and larger details were added after the pieces had dried sufficiently but before they reached a fully bone-dry state. This approach allowed me to maintain the necessary detail and accuracy in the forms while ensuring they retained their structural integrity during the drying process.

### *Thorax, Hands, Feet, Hyoid, and Patellas*

The bones in this section are significantly smaller and more delicate compared to the larger bones of the human body. As a result, I employed the same method of coiling, pinching, and carving to create them. The thoracic skeleton consists of the sternum and ribs. The sternum was made from a small rectangular slab, which I traced from my sketches to ensure it adhered to the correct proportions. The ribs were individually coiled and pinched into shape, initially using paper supports to help maintain the circular form of the ribs. After completing the first six, I realized the paper did not provide enough structural support to prevent the small coils of wet clay from pulling apart under the force of gravity. To address this issue, I allowed the ribs to rest flat on the table (Figure 5). While this method provided greater structural integrity for the thin bones, it did result in a flat side on each rib, sacrificing some of the anatomical accuracy.



Figure 5: First twelve ribs in the beginning stages of drying.

The carpals, metacarpals, tarsals, metatarsals, and phalanges were created using a similar coil and pinching technique. I used my fingers to shape each bone based on the sketches I had

made, employing a needle tool only for adding small details to the surfaces (Figure 6). Like the ribs, these bones were left to dry flat on the table. This flattening was a purposeful decision, as the bones of the hands and feet are small and individually crafted. Allowing them to have a flat side provided practical benefits, including space for labeling the bottoms of each bone. This labeling ensured that no bones would be lost during firing and allowed me to easily identify and reassemble any that became warped during the firing process.



Figure 6: First hand fully fired to cone 10.

The hyoid and patellae were both constructed from leftover scraps of porcelain from the other pieces in this section. I began by wedging the scraps into a 1-pound ball to eliminate air pockets and achieve a more consistent texture. To form the patellae, I simply pinched the clay from the ball and rolled it in my palms to achieve the appropriate shape. I then fitted them to the patellar surfaces of the completed femurs and pinched them further to ensure a perfect match

after firing. The hyoid was crafted from the remaining clay by rolling a coil, shaping it according to my sketches, and carving the details once the clay had hardened.

### *Skull and Vertebrae*

For the skull and vertebrae, I used a chiseling technique, starting with solid blocks of clay and employing loop and needle tools to carve in detail—like how an artist might approach ice sculpting (Figure 7). The vertebrae were relatively quick to make, with some sessions allowing me to carve six in one studio visit. After shaping each vertebra, I allowed the pieces to harden for 2–3 days before refining the details (Figure 8). The C1 and C2 vertebrae took significantly longer than the rest and were not completed for two weeks. I knew from the start that these needed to fit together precisely, as they do in the human body. It took three attempts to achieve the perfect fit with minimal distortion (Figure 9).



Figure 7: Solid block of clay prior to being carved to create C1.



Figure 8: C1 vertebrae in wet stages before resting to dry.



Figure 9: C1 vertebrae completely bone dry.



The skull, which was the final piece I completed, took less than two weeks to finish, but many late nights at the studio. I began by splitting my entire block of wet clay in half to form the base (Figure 10). Working on a banding wheel, I was able to rotate the piece easily while chiseling. The skull became an obsessive endeavor. Each studio session involved at least five hours of chiseling, molding, and refining (Figures 11 & 12). I struggled to balance the human likeness with avoiding a "scary" look. Many intricate details were made and then erased until I finally managed to achieve a subtle, serene expression—a faint smile.



Figure 10: Solid block of clay roughly shaped into skull shape.



Figure 11: Skull in the beginning stages of carving.



Figure 12: Preliminary skull carving complete, one of many phases of detailing.

Once the exterior was complete, I allowed it to dry for three days before beginning the interior excavation. Unlike the vertebrae, which were small enough to remain solid, the skull's size and thickness made it difficult to dry fully without hollowing it out. I had to work quickly while avoiding disturbing delicate details, carefully thinning the walls without going too deep. Hollowing out the skull was a challenge due to the varying states of dryness in the layers of clay. I supported the skull upside down on a tower of dry sponges to maintain its shape and spent a total of 9 hours using a ribbon tool and a wooden trimming tool to hollow it out. Afterward, I placed it in a dry box, monitoring it in intervals of one hour at a time. Despite my efforts, it still took several days to dry completely. Ultimately, I had to fire it before it was fully bone-dry, as it would have taken many weeks to dry all the way through.

## *The Holes*

While the holes on the long bones and some of the larger pieces served an aesthetic purpose, their primary function was to prevent air pockets from forming and causing damage during firing. Due to my amateur method of sculpting, particularly with the larger bones, it was highly likely that I had inadvertently trapped small air pockets inside the clay. In a typical firing process, as the clay heats up, moisture trapped in the air pockets evaporates. As the temperature rises, this trapped moisture seeks an escape route, which can cause the clay to crack or even explode. By adding holes to the surface of the pieces, I provided a controlled exit for the moisture, preventing the pieces from cracking or breaking.

I varied the hole sizes to enhance the realistic appearance of the bones, creating shadows and highlights that followed the natural contours. Detailing each bone with these holes took several weeks, but once completed, I allowed the pieces to dry fully before placing them in the kiln. I found that poking holes not only sped up the drying process but also helped mitigate the typical 11% shrinkage rate of porcelain. The holes also provided additional structural support, reducing the warping commonly associated with high-temperature firings of English porcelain.

Not all the pieces in my thesis required holes. As mentioned, the larger sculptural bones needed them to dry properly and avoid cracking, but smaller bones did not pose the same risk. With more experience and confidence in my technique, I was able to avoid creating many air pockets in the smaller pieces, which meant they could dry without holes. However, this resulted in a continuity issue. The pieces without holes shrank significantly more during firing, which led to discrepancies in both size and surface texture across the work.

## **Firing**

To fire all 178 pieces, I had to conduct three separate oxidation firing cycles. The first cycle contained 30 pieces: two femurs, 27 hand bones, and one os coxa. Since I shared a kiln with my classmates, these pieces were bisque fired to cone 6, then removed and re-fired unglazed to cone 10.

The second cycle included 34 pieces, consisting of the radii, ulnae, tibiae, fibulae, and 26 foot bones. Like the first cycle, these were bisque fired to cone 6 and then fired unglazed to cone 10 in oxidation.

The final firing cycle included all remaining pieces, totaling 114. For this firing, I was able to use a full kiln on my own, which allowed me to skip the typical pause in firing at cone 6 and fire everything directly to cone 10. When loading the kiln, I used 8 shelves, staggered to allow proper ventilation to each level and ensure an even firing across all pieces.



Figure 13: All 114 remaining bones in the kiln prior to final single fire.

Given that some pieces were not fully bone-dry before loading, I was advised to conduct a very slow firing process to ensure all moisture was expelled before the kiln reached higher temperatures. I programmed the kiln to fire in the following four segments:

1. The temperature increased by 50°F per hour until it reached 200°F, at which point the kiln held that temperature for 18 hours. This segment required approximately 21 hours to complete.
2. The temperature then increased by 50°F per hour until it reached 850°F, where it held for 2 hours. This segment took approximately 15 hours to complete.
3. The kiln temperature increased by 85°F per hour until it reached 1150°F, just beyond quartz inversion, typically occurring around 1080°F. A standard firing cycle would accelerate after quartz inversion, but I opted for a slower approach to ensure even firing and avoid cracking from rapid temperature changes. This segment lasted approximately 4 hours.
4. Finally, the kiln temperature increased by 400°F per hour until it reached 2450°F, at which point the kiln would shut off. This segment needed approximately 3 hours to complete.

The total expected firing time was 43 hours. I started the kiln at 10 a.m. on Monday, with a 7-hour delay, and expected the firing to be completed by 12 p.m. on Wednesday. Unfortunately, the kiln malfunctioned during the final cycle. By 11:30 a.m. on Wednesday, it had only reached 1777°F. I monitored the temperature closely throughout the day, but by 2 p.m., it had only reached 2162°F before the kiln had to be shut off. As a result, the final 114 pieces were fired only to cone 4, rather than the intended cone 10. This malfunction caused most of the pieces to emerge with a faint pink tint, varying shrinkage, and a rougher texture compared to the previously fired pieces. While this outcome was not part of my ideal plan for the skeleton, I had no choice but to work with the pieces as they were, given the time constraints.

## Chapter 4: Assembly and Presentation

Once the technical aspects of my piece were completed, I faced the decision of how to present *Still Life* to the public. I ultimately decided that, after the painstaking work of constructing each bone individually, I would reassemble them into a single, cohesive figure. I began by sorting the bones into categories: arms, legs, thorax, skull, vertebral column, pelvic girdle, and shoulder girdle. Using a two-ton epoxy adhesive, I carefully glued each bone into place, ensuring that the pieces fit together with the intended precision.

For the purpose of presentation, I chose to assemble the skeleton in the resting position. This decision allowed for a softer, more melancholic interpretation of the skeletal form. The fetal position, as opposed to a typical anatomical display, minimizes the harsh scale of the bones and creates a more intimate, approachable composition for viewers. This pose evokes a childlike sense of peace and vulnerability, simultaneously conveying emotions of both protection and submission. It suggests a state of repose, but also speaks to the fragility and impermanence of life. The final position, though rooted in the theme of death, becomes a gesture of quiet serenity.

The reassembly process itself took over a month to complete, involving eight packages of epoxy and four rolls of masking tape. Due to the 24-hour curing time of the epoxy, I had to carefully position and glue each piece two at a time, securing them with tape as they dried. While it could have been possible to create larger combined pieces, I wanted to challenge myself in my knowledge of osteology and ceramics by separating most of the pieces. This meticulous process required patience and precision, as each bone had to be carefully adjusted to ensure the overall structure held its integrity.





Figure 14: Ceramic Skeleton Hand at Thesis Defense presentation

For viewing, *Still Life* was laid on a bed of flowers, further deepening the connection to the natural cycle of life and death. The flowers act as a symbol of both the fragility of life and the inevitability of death, providing a subtle yet poignant reference to a funeral setting. In the left hand of the skeleton, I placed a single carnation—a symbol of love, respect, and innocence. The carnation not only serves as an aesthetic contrast to the skeletal form but also as a deliberate act of honoring the past, the loved, and the lost.

This final presentation allowed me to balance the technical labor of creating the bones with a deeper, more contemplative gesture. The juxtaposition of the starkness of the bones and the softness of the flowers, the pose of the skeleton and the symbolism of the carnation, creates a dialogue between life, death, and the human experience. It also challenges the viewer to consider not only the physicality of the form but also the emotional weight it carries—the tenderness and complexity that emerges even in something as seemingly clinical as a skeletal structure.

## Chapter 5: Reflection and Concluding Remarks

What began as a creative exploration of my knowledge and passion for forensic anthropology gradually evolved into a profound journey of self-reflection. Throughout the process, my intellectual mind was often at odds with my artistic heart. I was initially driven by the desire to craft a specific forensic scenario, to channel everything I had learned about anthropology into a single piece of art, hoping to convey my understanding with perfect accuracy.

I spent months deliberating over how the bones should be molded, meticulously cataloging every detail of the human skeleton, and questioning how to achieve a flawless replica. I explored countless avenues of inquiry, researching endlessly, writing and rewriting plans for what my piece could or should be. I sought advice from professors, classmates, and friends, challenging myself to find meaning and direction through their perspectives. I became lost in the strict standards I set for myself, allowing my ego to dictate my process.

However, as soon as my hands touched the clay, my mind took a backseat, and the process of creation took over. I became completely immersed in the act of making—feeling the clay under my fingertips, rewetting and reshaping it, revisiting each bone with renewed focus. I poured every bit of myself into this work—my long Friday nights into Saturday mornings, my days off from work, my frustrations, my grief, my perfectionism. I even modeled the skeleton's measurements after my own body. Once I discovered the flow of making, I couldn't stop. In those moments of shaping the bones, the clay became an archive, holding all my mistakes and successes. Every break, every restart, every touch and fingernail mark was embedded in the material. The clay became a silent witness to my journey, just as the bones are a witness to our humanity in death.

I had procrastinated starting this project for so long, yet once it was completed, I resisted the moment when I knew I had to fire the piece. I put off the final stage until the last week of school. Deep down, I feared that once the clay was fired, the malleability of the piece would be lost. The process of transformation would be irreversible. Once the clay reached the magic temperature of 1050°F, it would solidify into ceramic—no longer a flexible medium that I could continue to shape or experiment with. It would no longer be "mine." It would become a vessel for others to project their own meanings and interpretations. This was the moment I had been dreading, the moment when my time for molding the skeleton was over and my process would die.



Figure 15: Ceramic Skeleton Final Presentation

The driving force behind this piece was to evoke the unspoken emotions of others, to breathe life back into the skeleton, and to create a connection that transcends death. Each time I placed a bone into the kiln, a small part of me detached. After the final firing, *Still Life*, which had been crafted in my image—through my time, my devotion, and my emotions—became its

own entity. The pieces designed to fit my measurements no longer did. The rib cage, which I had intended to mirror my own, warped and cracked. The skull, despite my meticulous construction and slow, careful firing, fractured and burst. The kiln, in its unforgiving heat, transformed my creation into something independent from me, something I could no longer control.

In a way, this process reflected the very sentiment I had hoped to convey: the inevitability of separation, the loss of control, and the unpredictability of life and death. After the piece left the kiln, I boxed it up and tucked it away in the back of my apartment for months, distancing myself from it—as we so often do with death. I threw myself back into work, into other hobbies, avoiding the confrontation with my own creation, just as we avoid confronting our own mortality.

Now, as I look back at *Still Life*, I feel a renewed connection to it, one that transcends the need for perfection. *Still Life* is not a flawless encapsulation of everything I learned during my studies in anthropology. It's not a perfect representation of my artistic growth. Instead, it embodies obsession, resistance, failure, success, and, above all, the process. It is a reflection of the journey, the struggles, and the moments of clarity along the way—an evolving testament to my engagement with both art and life.

## Bibliography

- American Association of Biological Anthropologists. "What is Biological Anthropology?" 2024. <https://bioanth.org/career/career-biological-anthropology/>.
- Bernard, H. Russel. "Methods Belong To All of Us." *Assessing Cultural Anthropology*, edited by Robert Borofsky, Hawaii Pacific University, 1994, pp. 168–179.
- Christensen, Angi M., et al. *Forensic Anthropology: Current Methods and Practice*. Academic Press, an Imprint of Elsevier, 2019.
- Dudzik, Beatrix, and Natalie R. Langley. "Estimating age from the pubic symphysis: A new component-based system." *Forensic Science International*, vol. 257, Dec. 2015, pp. 98–105, <https://doi.org/10.1016/j.forsciint.2015.07.047>.
- Fletcher, Alexandra, et al. "Collection Care." *Regarding the Dead: Human Remains in the British Museum*. British Museum, 2015.
- Galloway, A, and JJ Snodgrass. "Biological and chemical hazards of forensic skeletal analysis." *Journal of Forensic Sciences*, vol. 43, no. 5, 1 Sept. 1998, pp. 940–948, <https://doi.org/10.1520/jfs14338j>.
- Heise, U et al. "Hydroxyapatite ceramic as a bone substitute." *International orthopaedics* vol. 14,3 (1990): 329-38. doi:10.1007/BF00178768
- Klein, Richard G. "Archeology and the Evolution of Human Behavior." *Evolutionary Anthropology: Issues, News, and Reviews*, vol. 9, no. 1, 2000, pp. 17–36, doi:10.1002/(sici)1520-6505(2000)9:1<17::aid-evan3>3.0.co;2-a.
- LaSane, Andrew. "Human Anatomy and Oozing Black Glazes Cover Ceramics by Canopic Studio." *Colossal*, 13 Oct. 2019, [www.thisiscolossal.com/2019/10/human-anatomy-ceramics-by-canopic-studio/](http://www.thisiscolossal.com/2019/10/human-anatomy-ceramics-by-canopic-studio/).
- Loerzel, Robert. *Alchemy of Bones Chicago's Luetgert Murder Case of 1897*. University of Illinois Press, 2003.
- Mogutable, "Guide: Ceramic Pottery vs. Porcelain." *Mogutable*, 18 Nov. 2021, [mogutable.com/blogs/news/guide-ceramic-pottery-vs-porcelain](http://mogutable.com/blogs/news/guide-ceramic-pottery-vs-porcelain).
- NamUs, "Missing Persons Case Search," *National Missing and Unidentified Persons Database*, [namus.nij.ojp.gov/](http://namus.nij.ojp.gov/).
- OSHA. "Health and Safety Recommendation for Workers Who Handle Human Remains." *Occupational Safety and Health Administration Fact Sheet*, 2005.
- Passalacqua, Nicholas, et al. "Forensic anthropology as a discipline." *Biology*, vol. 10, no. 8, 21 July 2021, p. 691, <https://doi.org/10.3390/biology10080691>.

Roberts, Lindsey G., et al. "An Update on the Hazards and Risks of Forensic Anthropology, Part I: Human Remains." *Journal of Forensic Sciences*, vol. 61, no. S1, Jan. 2016, pp. S5-S13. doi:10.1111/1556-4029.12947.

The American Board of Forensic Anthropology. "Active Diplomates (by State): The American Board of Forensic Anthropology." *The ABFA*, [www.theabfa.org/active-diplomates-by-state](http://www.theabfa.org/active-diplomates-by-state).

White, T. D., and Pieter A. Folkens. *The Human Bone Manual*. Academic, 2005.