

ASSESSING THE EFFECTS OF CLOTHING ON HUMAN DECOMPOSITION
RATES IN CENTRAL TEXAS

by

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CHAPTER I

INTRODUCTION

1.1 Statement of Problem and Purpose

When decomposing human remains are recovered in a forensic setting, it is important to know which factors affect the rate of decomposition. Rates of human decomposition are known to be influenced by environmental and cultural factors (Bass 2003, Clark et al. 1997, Dautartas 2009, Haglund and Sorg 1997, Mann et al. 1990, Miller 2002, Steadman 2009, Ubelaker 1997, Voss 2011). If clothing is a significant factor, that knowledge may alter the time since death estimation. Several studies have examined the rate of decomposition in Central Texas (Parks 2011, Suckling 2011, Sears 2013), but none have examined the influence of clothing on the rate of decomposition. This study was inspired by the work conducted by Miller (2002) in Tennessee. This study will examine the decomposition of three clothed individuals in Central Texas and compare those data to longitudinal information on unclothed remains. The intent of this pilot study is to lay the groundwork for further research on body coverings in Central Texas and other similar climates.

Many published case studies involve clothed individuals (Steadman 2009, Bass 2003, Goff 1991), but currently, decomposition studies are typically done on unclothed remains (Suckling 2011, Parks 2011, Bass 2003, Miller 2002). Researchers have reported that 50-70% of their forensic cases involve clothed individuals (Miller 2002, Komar 1998, Galloway 1997). It is important to know if clothing has a significant impact on decomposition so that time since death (TSD) estimates may be improved if there is an

effect, or if there is no effect, the strength of current research practices may be reinforced. An accurate estimation of TSD, also called post mortem interval (PMI), may be pivotal in a forensic death investigation (SWGANTH 2013). Therefore, there is a need to examine the effects of clothing on decomposition patterns and rates in Central Texas.

Based on the studies reviewed (Miller 2002, Voss 2011, Dautartas 2011, Parks 2011, Suckling 2011, Dejong and Hoback 2006) , the hypothesis for this project is that the presence of cotton clothing will affect decomposition by accelerating mummification. Because decomposition slows significantly in mummified remains (Galloway 1989), accelerated mummification should lengthen the decomposition time until skeletonization.

1.2 Background

In recent years, the field of forensic anthropology has become more diverse and interdisciplinary than at any point in its history (Blau and Ubelaker 2009). Today, a forensic anthropologist's job may extend beyond estimation of biological profile to include trauma analysis, an assessment of the depositional contexts in which remains are found and an estimation of the time since death (TSD) interval (Steadman 2009, Haglund 2002). These aspects of the forensic anthropologist's job rely heavily on forensic taphonomy, which is affected by numerous factors (Steadman 2009, Nawrocki 1996).

Ivan Yefremov first created the word taphonomy in 1940 to mean "the study of death assemblages in the fossil record" (Haynes 1997). It comes from the roots 'tafo' for burial and 'nomos' for laws; it is "the study of the laws of burial" or the study of the processes which occur to an organism after death (Nawrocki 1996). These processes include "decomposition, dispersal, erosion, burial, and re-exposure of organisms after, at,

and even before death ... [and] cause sampling bias or differential preservation” (Nawrocki 1996:1). Research in forensic taphonomy focuses on the postmortem changes to human remains and contributes to improving the accuracy of estimating TSD (Bass 2003, Ubelaker 1997). No two humans decompose in exactly the same manner. Taphonomic factors may be cultural or natural. Cultural factors may include burial practices, use in academic study, purposeful mutilation, cremation, or accidental damage incurred during excavation (SWGANTH 2013). Natural factors include climate, sun exposure, plant life, insect and animal activity, coverings or confinement, and other environmental factors have been shown to influence postmortem changes (Ubelaker 1997, Gunn 2009, Simmons et al 2010, Bass 1997, Aturaliya and Lukasewycz 1999, Mann 2009). Due to regional variations in these influential factors, decomposition proceeds at varying rates in different geographic regions (Ubelaker 1997, Gunn 2009). In addition to these factors, microclimatic differences such as elevation, temperature, humidity, and wind or sun exposure can impact the rates of decomposition (Nawrocki 1996, Mann 2009). Because the process is so complex and affected by so many factors, it is important to understand their effects and create data sets that are specific to different environmental regions. Therefore, every climatic region in which forensic casework is conducted needs a region-specific set of taphonomic data (Galloway et al. 1989).

1.3 Previous Studies

In 2008, the Forensic Anthropology Research Facility (FARF) on Freeman Ranch at Texas State University was founded (Hamilton, personal communication 2013). Since then, three studies relevant to this research have been conducted on human

decomposition at the facility. These include Parks' (2011) thesis and subsequent *Journal of Forensic Sciences* publication, and the theses by Suckling (2011), and Sears (2013). Parks (2011) established preliminary baseline data for human decomposition during the summer in Central Texas based on one unclothed individual. Suckling (2011) tested the Megyesi et al. (2005) method in Central Texas using ten unclothed individuals over nine months. Sears (2013) established baseline data for unclothed remains and tested Vass's Universal Post-Mortem Interval Formula (2011). However, none of these studies examined the effects of clothing on the decomposition rate of humans in Central Texas.

Studies examining the effects of coverings on decomposing remains have been conducted at other locations, including Tennessee and Western Australia (Miller 2002, Dautartas 2009, Voss et al. 2011). Both Tennessee and Western Australia experience different climates than Central Texas. Central Texas, specifically Freeman Ranch, experiences a humid subtropical climate (Dixson 2000) while Knoxville experiences a temperate climate (University of Tennessee Institute of Agriculture 2013) and Perth, Western Australia experiences a Hot-summer Mediterranean Climate (Peel 2007). Therefore, we cannot assume the results of studies conducted in these regions are directly applicable in Texas.

These climate types belong to the Köppen-Geiger climate type system developed by Wladimir Köppen in 1900. This remains the most commonly used climate classification system to this day (Peel 2007). Figure 1.1 demonstrates the latest update of this system on a color-coded world map done by Peel and colleagues (2007). Areas circled in black are humid subtropical climates similar to Central Texas. The results of this study should be applicable to these regions.

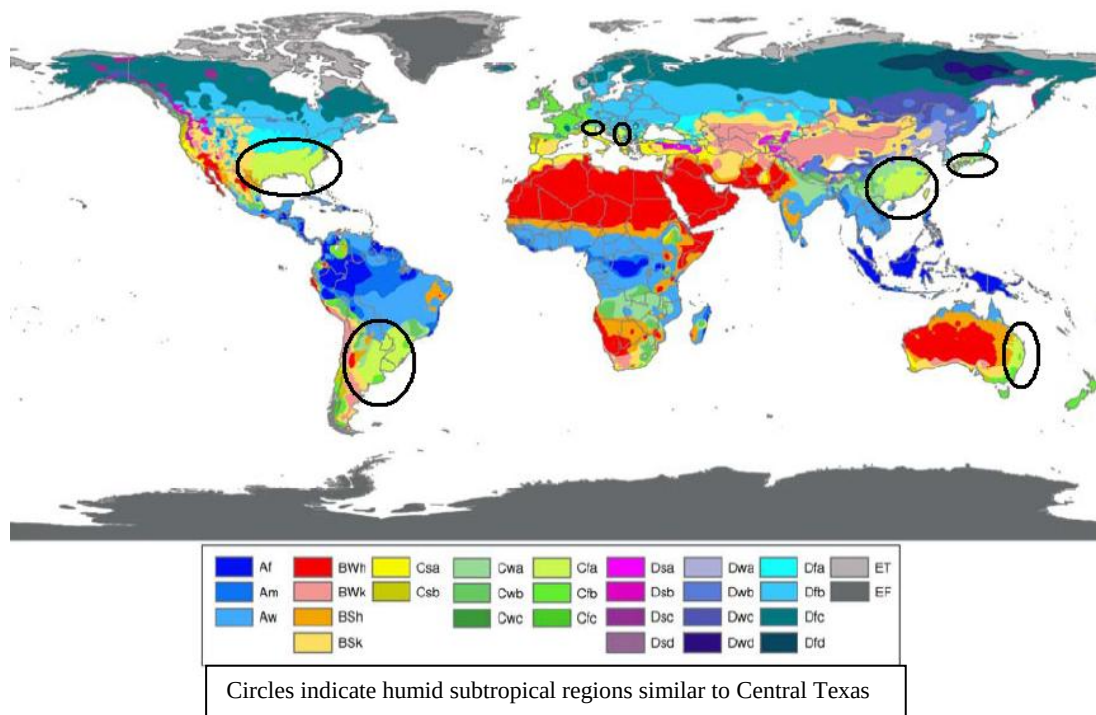


Figure 1.1: Köppen-Geiger Climates of the World Taken From Peel et al. 2007

Miller (2002) conducted a study at UTK which examined the effect of clothing on decomposing human remains placed on the ground surface. She clothed six individuals in sweatshirts, t-shirts, and sweatpants. She did not disturb the remains during observation, but rather gathered information based on visible tissue. Miller found that the presence of clothing retarded the progression of the stages of decomposition in summer and spring, but had no effect in the winter. Overall, the presence of clothing prevented the decomposition of the skin and accelerated mummification; however, the differences in the rate of decomposition in her study were not statistically significant. This study is influenced by her research design.

Dautartas (2009) studied the presence of different material wrappings at UTK. She wrapped two individuals in cotton blankets, two in tarps and left two uncovered for controls. She placed a probe thermometer in the ground beneath each individual to

determine if there was a significant temperature difference between the individuals. While she did observe a difference in the decomposition, the temperature difference was not statistically significant. After a 30-day study, during which time she did not disturb the coverings on the remains, she found that human remains wrapped in the cotton blanket experienced accelerated mummification while the remains in the tarps experienced prolonged moist decomposition and insect activity.

Sears (2013) analyzed the longitudinal data collected at FARF to establish a baseline for human decomposition in Central Texas. She also compared this information to the Universal Post-Mortem Interval Formula published by Vass (2011). She found that Vass's formula yielded predictions that were significantly different, and consistently higher than the results for the Texas population. In the Texas sample, she found that decomposition followed the general stages of fresh, early, late, and skeletonized. However, discoloration followed no observable pattern. Only one of the samples analyzed by Sears experienced skeletonization, the rest experienced mummification.

A recent study by Voss and colleagues (2011) in Western Australia examined a total of six clothed and four unclothed pigs (*sus scrofa*) in the autumns of 2001 and 2003. They found that the presence of clothing prolonged the presence of moist decomposition and therefore prolonged the entire process of decomposition, from fresh to skeletonization. Voss and colleagues (2011) found that clothed pigs experienced statistically significant prolonged moist decomposition and greater maggot activity than unclothed ones.

A comprehensive study based on experience and publications conducted by Mann and coworkers (1990) indicated that while clothing may affect decomposition rates, its

effect is less significant than climatic and entomological factors (Mann et al. 1990). The authors assert that the presence of clothing slightly accelerates decomposition because it provides shelter for maggots. However, they did not mention the climate or region from which their experience was drawn (Mann et al. 1990).

1.4 The Process of Decomposition

There is some disagreement among anthropologists over what to call the stages of decomposition, what characteristics belong in those stages, and the order in which those characteristics proceed (Galloway 1989, Reed 1958, Love and Marks 2003, Bass 1997). For this study, a modified form of Galloway et al.'s (1998) stages will be used. Barring mummification, remains experience fresh, early decomposition, advanced decomposition, and skeletonization stages (Galloway et al. 1998, Megyesi et al. 2005, Sears 2013). Galloway et al. (1989) define the stages of decomposition for an arid climate by the presence of certain characteristics. Table 1.1 defines these characteristics and is taken directly from Galloway et al. (1989). Table 1.2 is the modified version of Galloway's stages that will be used for this study. References to color and mummification were removed, as studies have shown decomposition in Texas to be inconsistent with these characteristics (Sear 2013, Suckling 2011, Parks 2011).

Table 1.1: Stages of Decomposition as described by Galloway et al. 1989

A. Fresh
1. Fresh, no discoloration or insect activity
2. Fresh Burned
B. Early Decomposition
1. Pink-white appearance with skin slippage and some hair loss
2. Gray to green discoloration; some flesh relatively fresh
3. Discoloration to brownish shades particularly at fingers, nose, and ears; some flesh still relatively fresh
4. Bloating with green discoloration
5. Post bloating following rupture of abdominal gases, with discoloration going from green to dark
6. Brown to black discoloration of arms and legs; skin having leathery appearance
C. Advanced Decomposition
1. Decomposition of tissues producing sagging of the flesh; caving in of the abdominal cavity. Often accompanied by extensive maggot activity
2. Moist decomposition in which there is bone exposure
3. Mummification, with retention of internal structures
4. Mummification of outer tissues only, with internal organs lost through autolysis or insect activity
5. Mummification with bone exposure of less than one half the skeleton
6. Adipocere development
D. Skeletonization
1. Bones with greasy substances and decomposed tissue, sometimes with body fluids still present
2. Bones with desiccated tissue or mummified tissue covering less than one half the skeleton
3. Bones largely dry, but still retaining some grease
4. Dry bone
E. Extreme decomposition
1. Skeletonization with bleaching
2. Skeletonization with exfoliation
3. Skeletonization with metaphyseal loss, with long bones and cancellous exposure of the vertebrae

Table 2.2: Stages of Decomposition Modified from Galloway et al. 1989

A. Fresh 1. Fresh, no discoloration or insect activity 2. Fresh Burned
B. Early Decomposition 1. Non-discolored appearance with skin slippage and some hair loss 2. Some flesh relatively fresh 3. Bloating 4. Post bloating following rupture of abdominal gases 5. Skin having leathery appearance
C. Advanced Decomposition 1. Decomposition of tissues producing sagging of the flesh; caving in of the abdominal cavity. Often accompanied by extensive maggot activity 2. Moist decomposition in which there is bone exposure 3. Internal organs lost through autolysis or insect activity 4. Adipocere development
D. Skeletonization 1. Bones with greasy substances and decomposed tissue, sometimes with body fluids still present 2. Bones with desiccated tissue or mummified tissue covering less than one half the skeleton 3. Bones largely dry, but still retaining some grease 4. Dry bone

Megyesi and co workers (2005) added point values to a modified version of Galloway's stages. The body was divided into head and neck, trunk, and limbs. Each region was analyzed separately and point values were summed to determine the stage of decomposition. Though the point system was found to be ineffective by Suckling (2011) and by Dabbs (2010), the technique of scoring body regions separately has merit because organs decompose more quickly than skeletal muscle and connective tissue (. Given the differential decomposition rates of organs and integument, the author has found it difficult to assign one stage to an entire body. The method of analyzing each region separately is based on Megyesi and coworkers, though that is where the similarity ends (2005).

At the moment of death, the body begins to cool or heat up to match the ambient temperature. This temperature change is called algor mortis (Clark et al. 1997). With the loss of oxygen, cellular metabolisms change and membrane integrities begin to break down, allowing metabolites to move into other tissues (Gill-King 1997, Gunn 2009, Carter et al. 2007). The loss of oxygen also encourages the growth of anaerobic bacteria in the gut, which digest the tissues of the body to create acids, and gasses (Carter et al. 2007). This process does not occur at once. According to Gill-King (1997), tissues that have more active Adenosine Triphosphate (ATP) production, biosynthesis, or membrane transport go through this process more quickly. The first to go through this include “intestines, stomach, accessory organs of digestion, heart, blood and circulation, [and] heart muscle” (Gill-King 1997). The next to fall apart is the lung and airway tissue, followed by kidney and bladder tissues. Brain and nervous tissue have high levels of ATP production and often come next. Skeletal muscles are next, followed at last by connective tissues and integument (Gill-King 1997).

The fresh stage is the time between death and the beginning of discoloration and bloat caused by putrefaction . During the fresh stage of decomposition, changes occur on a microscopic level, while the body remains virtually unchanged on a macroscopic level. From 20 to 120 minutes after death, livor mortis sets in. This is characterized by purplish discoloration at the lowest points of the body caused by pooling of blood in the veins and capillaries (Clark et al. 1997). Between two and six hours after death rigor mortis begins with noticeable stiffening of muscles. Complete rigidity is reached after approximately 10-12 hours and dissipates after approximately 24-36 hours (Dix and Graham 2000). Colder temperatures may delay the onset of rigor mortis and prolong its presence in the

body for up to 16 days with partial stiffening detectable up to 28 days after death (Clark et al. 1997, Gunn 2009, Haglund and Sorg 1997).

The early stage of decomposition is characterized by discoloration, invertebrate activity, and the formation of gases that cause bloat (Galloway et al 1998, Carter et al. 2007). A major component of the gases produced is hydrogen sulfide (H_2S) which reacts with hemoglobin in blood to create a greenish pigment (Galloway 1997). This is what causes superficial veins and capillaries to discolor and become distinct (Galloway 1997). Insects detect these processes of decomposition and begin to colonize the body's orifices (Galloway 1997).

Advanced Decomposition is the stage of decomposition that includes putrefaction, often referred to as active decay (Gunn 2009). During this stage, autolysis is accelerated, skin is lost and tissue liquefies, causing black purge stains around a decomposing body. It ends with the occurrence of greater than 50% bone exposure (Gunn 2009, Galloway 1997).

Galloway and coworkers (1998) included mummification in the advanced decomposition stage (see Table 1.1), but this can occur at almost any point and retard further decomposition. In contrast to Galloway and colleagues' (2008) stages, Parks' (2011) study in Texas recorded mummification rather than the final stage of skeletonization. Suckling (2011) found that the decomposition sequence in Central Texas follows the main stages outlined by Galloway and coworkers (1998), but that color and mummification did not agree with their stages. This may be due to the difference in climate between Arizona and Central Texas. Because of this difference, mummification

had to be treated differently in this study. Mummification was not included as a characteristic of any stage, but rather observation was terminated at its occurrence. For the purposes of this study, it was defined as the point at which the visible tissues of a body region have desiccated and show no noticeable change for a period of at least one week. For the purposes of this study, the “end point” of decomposition was considered the first day of this weeklong period.

Since no studies from Central Texas have compared clothed and unclothed decomposition rates, this study seeks to fill that gap by addressing the question of if and how clothing significantly affects decomposition. Due to the variability of results regarding clothed decomposition rates, it is important to have conducted this study in Central Texas so that forensic anthropologists working in this area and other humid subtropical regions can more accurately estimate the time-since-death on forensic cases involving clothed remains.

1.5 Accumulated Degree Days

This study will use ADD rather than calendar days to discuss the progression of decomposition. Historically, researchers have analyzed TSD in terms of days, but in recent years, it has become more common to use Accumulated Degree Days (ADD) (Vass 1991, Miller 2002, Megyesi 2005, Dautartas 2009). This allows the amount of heat a body experiences to be standardized. This is important because a body in the summer could potentially decompose in the same number of ADD as a body in winter, but it would take far fewer days.

The use of ADD was first published in 1987 by Edwards and coworkers as a method for entomologists to determine the growth rates of insects. This is because insect growth is linearly correlated with temperature (Edwards et al. 1987). ADD “represent heat energy units available to propel a biological process such as bacterial or fly larvae growth” (Megyesi 2005: 4). In the spring, warming temperatures accelerate larval development and the use of ADD allows entomologists to predict when adults will emerge. Since its initial publication, ADD has been adapted for use in forensic entomology as well as forensic anthropology.

The equation for ADD averages daily highs and lows and subtracts a base temperature. The base temperature is the point below which insect growth, or in this case, decomposition ceases. According to Megyesi and coworkers (2005), it is unknown at what temperature human decomposition ceases. They used 0°C as the base temperature because freezing essentially stops biological processes. If any subzero temperatures were recorded, Megyesi and coworkers (2005) treated them as a zero rather than a negative. This study will use ADD rather than calendar days to mark the passage of decomposition.

CHAPTER 2

MATERIALS AND METHODS

2.1 Materials

Texas State University has an outdoor research facility with the capability of studying the stages of decomposition of donated human remains. The Forensic Anthropology Research Facility (FARF) located within Texas State University's Freeman Ranch property is the location of all decompositional research used in this thesis.

Location

All research used in this thesis was conducted at Texas State's Forensic Anthropology Research Facility (FARF) at Freeman Ranch. FARF is located in San Marcos, Texas and consists of a fenced-in area populated by tall grass and scrub trees. San Marcos experiences a humid sub-tropical climate with occasional droughts. During drought time, the climate can change to semi-arid conditions (Dixson 2000). The yearly average temperature is 60°F (15.6°C) with highs in the 90s-100s (32+°C) and lows in the 40s °F (4-10°C) (Dixson 2000).

Study subjects

For this project, three donated human remains, called "donations", were clothed and observed during May and June 2013. Donations had to meet a set of requirements prior to their inclusion in this study. These requirements included that the donations be

unautopsied, above the 5th percentile and below the 95th percentile of the mean body weight for their demographic, and that they show no sign of decomposition upon arrival. The first of three donations, D27-2013, was placed on May 25, 2013. The next individual, D28-2013, was placed on June 9, 2013. The third individual, D30-2013, was placed on June 12, 2013. All individuals were placed in an extended supine position. The biological profiles of these individuals are provided in Table 2.1.

Table 2.1: Biological Profiles of Clothed Individuals

ID #	Sex	Ancestry	Stature meters (feet)	Weight kilograms (pounds)	Date of Death	Placed at FARF
D27-2013	M	European American	1.7 (5.6)	81.6 (180)	5/20/2013	5/24/2013
D28-2013	M	European American	1.83 (6)	90.7 (200)	6/4/2013	6/9/2013
D30-2013	M	European American	1.83 (6)	83.9 (185)	6/5/2013	6/12/2013

The clothing utilized in this project consisted of sweat pants and sweatshirts. The sweatpants were a blend of 55% cotton, and 45% polyester and were purchased from the Vanity Fair outlet in San Marcos, Texas. They were the same brand and the same color. The sweatshirts were a blend of 60% cotton and 40% polyester with a zip up front and of the same brand. These were purchased from the local Goodwill store but had plastic tags from the retail store, which implied that they were new. These clothes were washed using All™ unscented laundry detergent to prevent unknown chemicals from contaminating the experiment.

Adjustments were made to the prefabricated clothing to allow observation of the limbs during decomposition. These adjustments are as follows: the sleeves were slit from

wrist to shoulder, and the pant legs were slit from ankle to waistband on the anterior surface. These slits were re-sealed using generic brand hook and loop fastener, commonly referred to as Velcro™. Due to the unreliability of the adhesive on No-Sew Velcro™, the stitch-on variety was used in this experiment. It was attached using a personal sewing machine. The location of these modifications is shown in Figure 2.1.



Figure 2.1. Locations Where Velcro™ Hook and Loop Fastener Was Added to Clothing

Due to an abundant vulture population in San Marcos Texas, donations at FARF must be covered with wire cages. While there is a range of sizes, typical cages measure 3' high by 7' long by 5' wide (see Figure 2.2). These cages have proven sufficient to exclude avian scavengers in previous studies (Suckling 2011, Parks 2011). The portion of FARF used for decompositional research is surrounded by wire fencing in order to exclude terrestrial scavengers as well as unauthorized individuals (see Figure 2.2).



Figure 2.2 Photo of Cages and Perimeter Fence

Control Data

The control data were drawn from the longitudinal data available through the records kept at the Forensic Anthropology Center at Texas State (FACTS). According to records, 160 individuals have donated their remains to FACTS since the facility was opened in 2008. In this study, the control sample consisted of 29 individuals who met the afore-mentioned requirements and were placed on the surface of the ground in an extended supine position (Table 2.2)

The first step in preparing this data was to remove all unsuitable data sets. Individuals were excluded based on the presence of autopsy cuts. Of the 160 individuals, 84 were unautopsied. Next, 13 donations used in other studies were excluded because the study altered the normal process of decomposition. Because body weight has a noticeable effect on decomposition (Gunn 2009, Simmons et al. 2010, Hewadikaram and Goff 1991), ten individuals with reported weights above the 95th percentile or below the 5th percentile for adults over 20 years were excluded (CDC 2010). Finally, thirty individuals were excluded because the recorded data was insufficient for this project. The 29 individuals who met all criteria are included in Table 2.2.

Table 2.2. Individuals from Longitudinal Study Who Met Qualifications

ID #	Sex	Ancestry	Age	Stature (cm)	Weight (kg)	Date of Death	Received
D14-2010	F	Af	63		65.8	12/10/2010	12/10/2010
D03-2011	M	Eu	68	180.3	122.0	2/13/2011	2/17/2011
D04-2011	F	Eu	68	160	104.3	2/27/2011	3/3/2011
D10-2011	M	Eu	63	182.9	72.6	6/24/2011	7/8/2011
D11-2011	M	Eu	75	182.9	98.9	7/18/2011	7/19/2011
D12-2011	F	Eu	54	162.6	93.0	7/28/2011	8/8/2011
D19-2011	M	Eu	56	177.8	90.7	11/12/2011	11/17/2011
D21-2011	F	Eu	56	154.9	73.9	11/23/2011	11/30/2011
D23-2011	F	Eu	66	167.6	65.8	12/18/2011	12/19/2011
D02-2012	F	Eu	68	157.5	59.0	1/6/2012	1/6/2012
D03-2012	F	Eu	78	162.6	56.7	1/27/2012	1/28/2012
D04-2012	F	Eu	63	167.6	69.9	1/27/2012	1/28/2012
D08-2012	F	Eu	77	162.56	59.0	3/12/2012	3/17/2012
D11-2012	M	H	76	180.34	99.8	3/30/2012	3/30/2012
D12-2012	F	Eu	64	162.6	54.4	4/10/2012	4/10/2012
D14-2012	M	H	85	167.6	61.2	4/30/2012	4/30/2012
D15-2012	M	Eu	62	177.8	68.0	5/7/2012	5/7/2012
D16-2012	M	Eu	47	177.8	117.9	5/5/2012	5/9/2012
D23-2012	M	Eu	56	180.3	99.8	6/16/2012	6/17/2012
D24-2012	F	Eu	83		78.2	6/21/2012	6/21/2012
D30-2012	M	Eu	74	182.9	104.3	7/21/2012	7/27/2012
D04-2013	M	Eu	79	180.3	68.9	1/14/2013	1/16/2013
D08-2013	F	Eu	68	165.1	56.7	1/27/2013	1/31/2013
D11-2013	M	Eu	64	177.8	72.6	2/9/2013	2/11/2013
D14-2013	M	Eu	58	172.2	56.2	2/19/2013	2/19/2013
D17-2013	F	Eu	47	167.64	56.7	3/24/2013	3/27/2013
D18-2013	F	Eu	91	170.18	54.4	3/26/2013	3/28/2013
D20-2013	M	Eu	67	182.88	83.9	3/28/2013	4/5/2013
D24-2013	F	Eu	53	177.8	90.7	5/5/2013	5/7/2013

Eu=European American, H= Hispanic, Af= African American

2.2 Methods

Intake Procedures

All donations were provided a unique number in the format D # - YEAR. The donations were transported to the Osteological Research and Processing Laboratory at Freeman Ranch (ORPL) in the rear of an unrefrigerated vehicle. Upon arrival at ORPL, the standard operating procedures of the facility were followed. This process is referred to as “intake” and consists of preliminary data and sample collection. Data collected includes cadaver stature, foot length, sex, ancestry, age, weight, wounds, markings, discoloration, or other abnormalities on the skin, and anything else of note. Samples collected include hair, blood and nail. Finally, any surgical devices such as breathing tubes or catheters were removed, if necessary and possible. Photos document the entire process. Each individual is marked with a metal tag at each wrist and ankle as well as on a stake in the ground near the head.

Following intake, the experimental donations were clothed in sweatshirts and sweatpants. If intake occurred after dark, the individual was placed in the morgue cooler at ORPL for the night. The following day, the individual was placed at FARF and documented with further photographs. If intake occurred in the day, the individual was placed immediately. All individuals were placed in a supine position in the same region of the facility. The location was in a grassy field near the tree line. The area received limited shade during the day with D30-2013 receiving the most shade. Shade may have some effect on decomposition, but it has not been studied in this climate and so was not addressed in this study (Srnrka 2003).

The author visited the site and collected data on each individual every subsequent day until mummification occurred. Data collected included recording the characteristics of decomposition (bloating, lividity, marbling, skin slippage, discoloration, skeletonization, mummification etc.), odor, insect activity, weather conditions, and any other item of note. Dr. Aaron Tarone, an entomologist who was teaching a class at FARF, identified two species of insect larvae for this study. While his students were collecting samples from D28-2013 and D30-2013, he identified major maggot masses on the remains. These data were noted on forms provided in Appendix A.

Photographs were also taken to document these observations. Each day at the beginning of the data collection, the cage was removed to allow access to the remains. An overhead and a horizontal profile photograph were taken for each individual while fully clothed. After this, in order to collect data on the portions of the individuals covered by clothing, the zipper on the jacket and Velcro on the arms and legs were opened and the material moved aside. Photographs and notes were taken on the tissue underneath. Photographs taken include the stake, full body, close-up of head, each arm, and each leg in addition to any developments of interest. The effect of disturbing remains was tested by DeJong and Hoback (2006) and by Adlam and Simmons (2007). Both studies found that disturbance did not significantly affect insect succession rates or decomposition rates on decomposing remains. For this reason, it was determined that the temporary disturbance of clothing would not significantly affect the rate of decomposition in this study. A catalog of all data collected is available in Appendix B.

Procedure for Determining the Stage of Decomposition

Initial analysis of the control sample involved examining photos and photo notes (where available) for each individual. Analysis of the experimental group was done daily by visiting the remains and opening the clothing to view the tissue. The stage of decomposition was determined separately for six regions of the body (head, right arm, left arm, right leg, left leg, and torso) and recorded in an Excel TM spread sheet. Figure 2.3 demonstrates these regions. When a region reached skeletonization or mummification data collection on that region ceased. While the total body score method advocated by Megyesi et al. (2005) has been proven ineffective (Dabbs 2010), the technique of analyzing each limb or body region individually has merit.

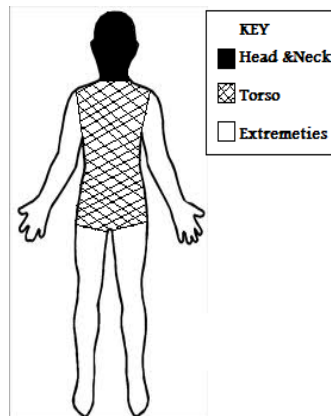


Figure 2.3 Body Region Map
Based on Megyesi et al. 2005

In this study, a modified version of Galloway and coworker's (1989) stages of decomposition (see Table 1.1) was used. The Fresh Stage was characterized by non-discolored skin and lack of insect activity. Upon arrival of insect colonization or occurrence of discoloration, a body region was determined to be in the Early Stage. The early stage encompasses extensive, though varied discoloration, bloat, and extensive

maggot masses. This stage may end in mummification or proceed to the Advanced Stage. At the first visible occurrence of purge or collapse of bloat, a body region entered the Advanced Stage. This stage includes liquefaction, purge, loss of bloat, and a lessening of insect activity. It ended with the occurrence of bone exposure at greater than 50% surface area or mummification.

Weather Data and Calculation of ADD

The weather data for Freeman Ranch was collected and organized by Ray Kamps of Texas A&M. The weather station is located on Freeman Ranch property and is known as the Freemanwood site. Detailed information about the equipment used to collect this weather data is available from Texas A&M Department of Water Management and Hydrological Science. These data were necessary for the calculation of Accumulated Degree Days (ADD). This method is commonly utilized by entomologists when analyzing the life cycle of insect species and has been adapted for use in forensic anthropology research. Human decomposition slows dramatically at 0°C, so any temperature values below 0°C was recorded as 0 ADD (Megyesi et al. 2005).

The Accumulated Degree Day values were calculated from the temperature data. $ADD = [(Max + Min / 2) - threshold]$ is the equation used to calculate ADD, in which “Max” is the highest temperature of the day in degrees Celsius (C), “Min” is the lowest temperature in C and the threshold the point at which meaningful activity ceases. ADD was then calculated for each stage for each body region. This was also performed in Excel™ using the autosum function. This data is available in Appendix B.

In entomology, the threshold is the point at which the temperature is too cold for insect development (Gunn 2009). In the case of forensic anthropology, the threshold is unknown, but 0°C is used since the majority of decomposition activity ceases or slows dramatically at that point (Megyesi et al 2005).

Statistical Analysis

The 29 unclothed donations from the longitudinal study served as the control and the three clothed individuals were the dependent data. Photos and notes were examined to determine the stage of each donation each day. This information was paired with the ADD for the appropriate days to yield the sum total ADD per stage and the grand total ADD until mummification or skeletonization. These data were calculated in Excel™ and are provided in Appendix B. These data were analyzed using a two-tailed Mann-Whitney U test for each stage and body region. For example, population 1 consisted of the total ADD for the early stage of the head region for all unclothed individuals. Population 2 was the same data points for the clothed individuals. This method yielded twelve total predictions of similarity.

To determine whether the control and experimental populations were statistically similar, a Mann-Whitney U test was performed on the data for each body region for the early and advanced decomposition stages, resulting in twelve total analyses. The fresh stage was excluded since the ADD for the days prior to arrival at FARF were unknown. FARF records do not include information on temperature conditions prior to arrival at the facility. For example, donations may or may not have been stored in morgue coolers for

some time. Since these data do not exist, it is impossible to know the ADD for the days of fresh stage between death and arrival at FARF

In a two-tailed Mann-Whitney test, the null hypothesis (H_0) is that the populations are the same, i.e. there is no quantifiable difference between the clothed and unclothed data for that body region during that stage of decomposition. The other hypothesis (H_1) in a two-tailed test is that there is a difference, but does not define what the difference is.

A Mann-Whitney U test was chosen because it is a non-parametric test and the experimental sample in this study was quite small. Non-parametric tests do not require a minimum number of samples and do not make assumptions about the distribution of the data (Sullivan 2004). The test compares the medians of two independent samples and determines if Sample 2 (clothed individuals) is similar to Sample 1 (unclothed individuals) or if they are conceivably separate populations. The alpha level chosen for this study was .05.

Means for the data were found and graphed using Microsoft Excel TM. For each individual, the ADD values at skeletonization or mummification for all regions of the body were averaged together. These values were ranked highest to lowest and graphed in a bar graph.

2.3 Limitations and Assumptions

Due to the preliminary nature of this study, only three individuals were clothed for the experimental group. These individuals were received within several weeks of one another and thus spanned a period of no more than one full month in the summer. Thus these findings are only appropriate for late May to June and should not be applied to the

rest of the year. Another limitation is that all the clothing used were cotton polyester blends. Therefore it should not be assumed that these results apply to other types of fabric or coverings. Finally, the lack of several days of data for some of the unclothed individuals resulted in having to make assumptions about the point at which one stage changed to the next. This created a less precise result than if there had been no large data gaps.

CHAPTER 3

RESULTS

3.1 Quantitative Results

Of the twelve comparisons, H_0 failed to be rejected ten times and was rejected twice. The two data points that were rejected were the Head and the Right Arm in the advanced stage of decomposition. By rejecting H_0 , the test is saying that there is a difference between Population 1 (unclothed) and 2 (clothed) for the head and right arm in the advanced stage. No significant difference was found for any points in the early stage. These results are summarized in Table 3.1.

Table 3.1 Results of Mann-Whitney U Test

Stage\Region	Early	Advanced
Head	Fail to reject H_0	Reject H_0
R Arm	Fail to reject H_0	Reject H_0
L Arm	Fail to reject H_0	Fail to reject H_0
R Leg	Fail to reject H_0	Fail to reject H_0
L Leg	Fail to reject H_0	Fail to reject H_0
Torso	Fail to reject H_0	Fail to reject H_0

Means

The mean of all body regions' ADD at mummification for the unclothed remains ranged from 231.2 to 1636.9, with the second highest being 954.6. The clothed remains ranged from 221.2 to 315 ADD until mummification or skeletonization. This data is represented graphically in Figure 3.1. Raw data are provided in Appendix C.

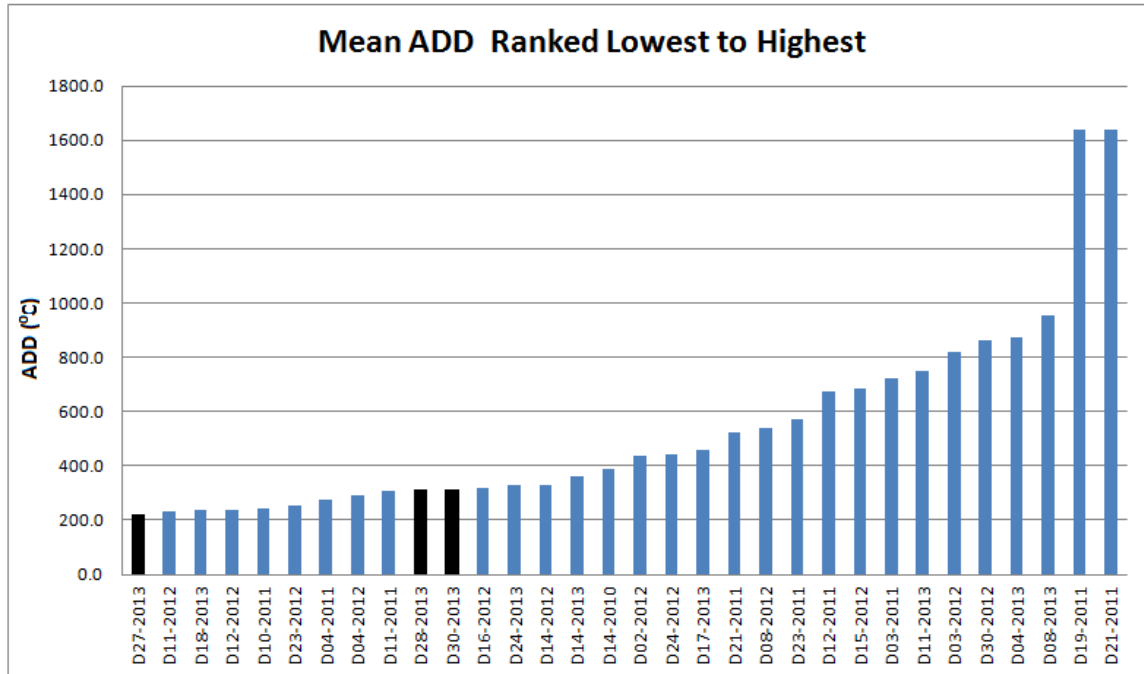


Figure 3.1. Graphical Representation of Mean ADD of All Body Regions

This graph displays the mean of all body regions for each individual as ranked lowest to highest. The black bars represent clothed individuals and blue represent unclothed.

3.2 Qualitative Results

Though only two of the twelve Mann-Whitney U tests were deemed significant, there is a broader finding revealed by this data. Skeletonization occurred in all three of the clothed samples but in only two of the 29 unclothed samples.

D27-2013 Skeletonization

The first clothed donation, D27-2013, arrived at the Osteological Research and Processing Laboratory at Texas State (ORPL) on the evening of May 24, 2013. The individual was stored in the morgue cooler overnight and placed at FARF on the following day. Six days later, on June 1 (213.6 ADD), the right arm displayed partial bone exposure and extensive liquefaction. On June 3 (264.8 ADD), the right arm was totally skeletonized and the left leg displayed partial bone exposure (Figure 3.2). By June

8 (392.6 ADD), the left leg displayed greater than 50% bone exposure and was considered skeletonized. At this time, the remainder of the body regions had mummified and decomposition considered over for the purposes of this study. Data collection continued for 1 month, but no significant changes occurred during that time. The only occurrence of note was the presence of damage to the mummified tissue, possibly dermestid beetles (*Dermestes lardarius*), which have been identified at FARF in the past (Tarone 2013 personal communication).



Figure 3.2. Partial Skeletonization of D27-2013 on June 3, 2013 : 264.8 ADD

D27-2013 Invertebrate Activity

During decomposition, insects observed on the remains include *Chrysomya rufifacies* (blow fly) larvae, *Cochliomyia macellaria* (secondary screwworm fly) larvae, adult flies and gnats, an unknown species of biting ant, several spiders, a white praying mantis, and small black beetles of an unidentified species (Tarone 2013 personal communication). Mosquitoes were noted nearby, but none on the deceased individual.

The *Chrysomya rufifacies* larvae were only found within the shelter of the clothing while the *Cochliomyia macellaria* larvae were found both inside and outside the clothing, or next to the remains where purge fluid had gathered. On May 31 (183.4 ADD) the maggot mass on the chest outside the clothing was so extensive, it prevented access to the zipper, and data collection on the torso was conducted by lifting the hem of the shirt without opening the zipper that day.

When clothing was opened for observation, the *Chrysomya rufifacies* larvae retreated quickly to sheltered areas and within one minute were no longer in sight. *Cochliomyia macellaria* larvae also retreated, but did not disappear from view entirely.

D27-2013 Discoloration

D27-2013 experienced various color changes. On May 29 (126.7ADD) the torso was purple and green. On May 30 (154.8 ADD) a deep red color was noted on the exposed area of the torso while the covered area was greenish-grey. The covered areas of the limbs were also noted as greenish-grey. By June 3 (264.8 ADD) the color of the lower stomach had lightened to yellow-orange and the covered areas remained greenish-grey-black. By June 8 (392.6 ADD) the color had changed to a golden-brown on the torso and brown-black on the limbs. After this date, the color did not change significantly during the time of observation. Figure 3.3 shows the remains on June 9 (420.5 ADD). After this point, the colors and state of decomposition were not observed to change in any significant way.



Figure 3.3 D27-2013 on June 9, 2013 : 420.5 ADD

D28-2013 Skeletonization

The second donation, D28-2013, arrived at ORPL on June 9, 2013 and was placed at FARF on that day. This individual was placed in the same clearing as D27-2013, approximately 2 meters nearer the tree line and in close proximity to what was later identified as a fire ant hill.

The right arm and face experienced partial skeletonization by June 17 (255 ADD), but at less than 50%. Therefore, these were determined to be mummified by June 19 (316.2 ADD) and 20 (346.2 ADD), respectively. The left arm displayed greater than 50% bone exposure and so was determined to be skeletonized by June 18 (285.4 ADD).

D28-2013 Invertebrate Activity

Insects observed on D28-2013 include all those observed on D27-2013.

Epidermal damage in the form of yellow-orange patches was observed on June 11 (84.4 ADD) (see Figure 3.4). This damage can be caused by pyramid ants (*Dorymyrmex pyramicus*), as well as several species of roaches (members of order *Blattaria*), fire ants (members of genus *Solenopsis*), or katydids (family *Tettigoniidae*), though none were observed on the remains (Tarone 2013 personal communication, Gunn 2009).



Figure 3.4 Insect Damage to Skin D28-2013 on June 11, 2013 (84.4 ADD)

On June 13 (141.1 ADD), maggots were observed under the epidermis of the limbs. When clothing was opened for observation, the subdermal maggots quickly retreated to the shaded areas, leaving areas that resembled skin slippage.

D28-2013 Discoloration

D28-2013 experienced various color changes. On June 12 (112.6 ADD), the coloration was largely that of fresh skin with patches of yellow all over and blackening of the feet. On June 14 (167.1 ADD), the face had turned yellow-red and bloated. By June

16 (224.4 ADD), full bloat had set in and the torso changed color entirely. The chest and upper stomach were dark grey or red brown, while the area between navel and pants was a lighter yellow-orange. This is shown in the first photo in Figure 3.5. Though less obvious than during the advanced stage, this color difference on the torso persisted into the mummification state (377 ADD), as seen in the second photo in Figure 3.5.



6/16/2013: 224.4 ADD



6/21/2013: 377 ADD

Figure 3.5. Differential Discoloration of D28-2013 on 6/16/13 and 6/21/13

D30-2013 Skeletonization

D30-2013 arrived at ORPL on June 12, 2013 and was placed the same day. This individual was placed just south of D28-2013, in the same clearing. D30-2013 was approximately 2 meters from the tree line.

D30-2013 experienced a greater degree of skeletonization than any other subject in this study, including unclothed remains. On June 17 (170.6 ADD), the first bone exposure was observed on both clavicles (see Figure 3.6). On June 18 (201 ADD), ribs, a pacemaker, and manubrium were exposed (see Figure 3.6). On June 19 (231.8 ADD), all but the most anterior surface of the legs were skeletonized, as well as the right arm and a greater portion of the ribs (see Figure 3.6). By June 21 (292.7 ADD), both arms, both legs and the torso showed greater than 50% bone exposure and the face was mummified with less than 50% bone exposure.



6-17-13 : 170.6 ADD



6-18-13 : 201 ADD



6-19-13 : 231.8 ADD



6-21-13 : 292.7 ADD

Figure 3.6. Skeletonization of D30-2013 on June 17, 18, 19, and 21 of 2013

D30-2013 Invertebrate activity

D30-2013 experienced the same insects as D27-2013 and D28-2013. Extensive maggot masses were observed on the legs, arms and head. On June 15 (109.9 ADD), the first maggot mass was observed on the face. On June 16 (140 ADD), the legs were covered in sub-dermal maggot masses and by June 17 (170.7 ADD) the dermal layer was gone and maggots were present across the superior surface of the remaining tissue (see Figure 3.7). By June 18 (201 ADD) all large maggot masses had dissipated.



Figure 3.7. Maggot Masses on Superior Surface of D30-2013 on June 16 and 17 of 2013

D30-2013 Discoloration

D30-2013 experienced few changes in discoloration. The first color change was on Jun 13 (56.8 ADD) with the appearance of yellow patches of skin where invertebrates had eaten the epidermis. This is the same pattern observed on D28-2013. By June 15 (109.9 ADD), the upper chest was completely yellow from dermal loss. On June 16 (140 ADD), the torso deepened to a darker red-black (see Figure 3.7) but the exposed region between the end of the sweatshirt and sweatpants showed a lighter color. By June 19 (231.8 ADD), all remaining tissue was black in color.

Unclothed Individuals

Many of the same insects were observed on unclothed individuals as on the clothed ones. However, the degree to which insects were present was much lower on the unclothed remains. Maggot masses tended to develop near the ground-body interface, in the facial orifices, and in the genitals. There are no examples of maggot masses on top of the limbs or chest.

Skeletonization was observed in only two of the 29 individuals in this sample. All others experienced mummification and data collection was terminated before skeletonization occurred. D11-2011 was placed on July 19, 2011 and experienced skeletonization in the right arm by July 23, 2011 (153.9 ADD). D14-2012 was placed on April 30, 2012 and experienced skeletonization of the right arm on May 6, 2012 (189.5 ADD).

CHAPTER 4

DISCUSSION

4.1 Quantitative Analysis

Of 12 Mann-Whitney U Tests (MWUT), two were found to be significantly different at the $\alpha=.05$ level. These were the right arm and the head regions during the advanced stage. Given that the MWUT for the left arm determined there was no statistical difference, these results could be due to statistical error or small sample size resulting in a false rejection of the null hypothesis known as a Type I Error (Sullivan 2004). The difference in arms could also be the result of shade from the sun, since all individuals were placed with heads facing the same direction, they received the same pattern of sun and shade each day. The head was not covered by clothing but large maggot masses on the upper chest and beneath the neck may have contributed to the greater degree of skeletonization here. This suggests that the clothed individuals may require significantly fewer ADD to pass from the beginning to the end of the advanced stage, but could also be due to Type I Error.

Although the other 10 data points were not statistically significant, there was a noticeable pattern in the data (see Figure 3.1). Clothed individuals tended to require less ADD over-all to complete all stages of decomposition until skeletonization or mummification. This is evident when total ADD for all body regions were averaged for each individual and ranked highest to lowest. The clothed data were consistently in the lower numbers for these ranks, with all clothed individuals occurring in the lowest third of the results. This may indicate that there is a tendency for decomposition to occur more

rapidly in clothed individuals. It may also indicate that there is another factor at work. Many of the higher scoring individuals were placed in the fall or winter while many lower scoring ones were placed in the summer or spring. This pattern may simply show seasonality, thus implying that remains in the cooler months take many more ADD to decompose. The sample size of this study is too small to determine which case is more likely.

Due to the small number of samples, these statistical analyses should be used only as an indication of tendency, not proof of difference or lack thereof. Future research should require greater sample sizes so the patterns will be clearer.

4.2 Skeletonization

Perhaps the most striking evidence that clothing had an effect on decomposition is the occurrence of skeletonization in the clothed individuals. All three clothed individuals experienced a greater degree of skeletonization than any unclothed individual, with D30-2013 displaying the most of all. Skeletonization does eventually occur in unclothed remains at FARE, but this can take months or years and typically occurs after mummification. Data on this process was not included in this study due to time constraints and lack of recorded data in the GEFARL records.

The reason for the greater degree of skeletonization in the clothed remains could be due to the environment it provided for maggots. The clothing provided shade from the intense UV rays, which can damage or kill larvae (Gunn 2009). Clothing also retained moisture, which contributed a warm, moist microenvironment, suitable for the growth and development of invertebrate larvae.

Evidence for this line of reasoning includes the large maggot masses of both *Chrysomya rufifacies* larvae and *Cochliomyia macellaria* larvae, extensive maggot presence on the surface of the remains, and observation of two distinct species of larvae. Maggot masses on the clothed remains reached such large volumes that they were found on the exterior of the clothing and, in the case of D27-2013, even prevented access to the zipper of the sweatshirt. All locations that experienced such extensive maggot masses also experienced skeletonization in part or in whole.

No maggot masses were observed on the anterior surfaces of unclothed remains, but were observed in such locations on the clothed remains. When clothing was opened and maggots exposed to the sun, they retreated for the shadowed areas. This suggests that UV rays are damaging to the larvae and supports the hypothesis that the shade provided by the clothing encouraged maggot development and consumption of the dermal tissues. In unclothed remains, maggots will consume the interior tissues, leaving an outer shell as a protective covering. When these donations are removed from FARF for disarticulation, it is common for the dorsal surface to be skeletonized and the anterior surface to be mummified.

Another possible effect of the clothing is the prevention of mummification and prolonging of moist decomposition through moisture retention. It rained several times during the decomposition of these three individuals. Due to the absorbent nature of cotton and polyester, the clothing may have retained rainwater, as well as morning dew, and even the body's own moisture. This created a moist micro-environment around the covered tissue. Mummification is known to occur in dry locations with either very high or very low temperatures (Gunn 2009, Blau & Ubelaker 2009). If the humidity is raised

by the presence of clothing, it would logically prevent mummification from occurring. If decomposition is not slowed to a near halt by mummification, there is more opportunity for moist decomposition to occur, which would logically result in the greater reduction of tissue over less time.

4.3 Discoloration

Discoloration was affected by the presence of clothing. Due to extensive bloating, the portion of the stomach from the navel to waistline of the sweatpants was exposed to the sun. This area was consistently lighter in color than the rest of the torso and had few or no maggots. At the same time, the covered area of the chest was well populated with larvae. This could be due to a lack of moisture in the tissue. The darker color of the covered region may be the result of the moist environment, i.e. it is the color resultant from active moist decomposition.

This information may be of use in determining the taphonomy of clothed remains. If clothing were to be disturbed after the coloration difference had developed, this information could be useful to investigators. For example, Komar and Beatie (1998) indicate that insect activity can move clothing in a way that mimics sexual assault patterns. If the discoloration pattern does not match the location of the clothing, then it is possible that taphonomic events had altered the placement of clothing post mortem. If the discoloration and position of clothing do match, it could support a hypothesis of perimortem clothing removal.

4.4 Observer Interference and Other Biases

The daily disturbance of clothing may have had an effect on the remains, though every care was taken to prevent excessive disturbance. For example, on May 31st, D27-2013 had a maggot mass which completely covered the zipper on the sweatshirt, so the decision was made to not disturb the mass and data was taken by lifting the bottom hem. DeJong and Hoback (2006) studied the effect of observer interference on 196 rats. They found that there was no significant impact to the insect succession patterns despite being disturbed daily. Based on these study, this potential bias was disregarded.

Additionally, some bias may arise in the statistical analysis due to lack of data. In the longitudinal data, there were frequent gaps when there was no data for a day or span of days. If the stage changed during that time, the elapsed ADD was divided in two, with half assigned to each stage. This was done because it was the only way to assign ADD to each stage without biasing the results in either direction. Further research should strive to have more complete data sets to avoid this potential bias.

CHAPTER 5

CONCLUSION

Currently, the standard operating procedure at FARF is to study decomposition on unclothed remains. However, in many forensic cases individuals have been discovered wholly or partially clothed (Steadman 2009, Miller 2002, Komar 1998, Galloway 1989, Goff 1991). For that reason, it was important to conduct this research to determine if clothing had an impact on decomposition and if so, what.

The initial hypothesis for this study was that clothing would have an effect and that it would promote mummification, thus prolonging decomposition over-all. This hypothesis was not supported by this research. No evidence was found to suggest that mummification occurred sooner in clothed remains than unclothed. Qualitative evidence suggested that clothing prevented mummification, thus allowing skeletonization to occur and speeding the overall process of decomposition. An unpredicted effect of clothing is the difference of color between covered and uncovered regions. The color difference created by clothing may be of use in piecing together the taphonomy of the remains. Because skeletonization occurred so consistently in this study, it could have a significant effect on TSD estimations. What may take months or years could take less than a month if the body is clothed. This information may be of use to other decomposition facilities that experience extensive mummification. If the goal of the facility is to obtain skeletal collections, clothing may be useful to accelerate decomposition time and promote more extensive moist decomposition of tissue. When more tissue undergoes moist decomposition, it becomes easier and faster to macerate remaining tissues.

The results of this study did not agree with other studies conducted on the subject. In Tennessee, Miller (2002) found that there was no statistical difference in the clothed and unclothed remains, while this study found two out of six body regions in the advanced stage to be significant. However, this finding may be biased due to small sample size, and may be the result of Type I Error. The quantitative difference Miller observed was that clothing accelerated the process of mummification. In the sample in Central Texas, the clothing had the effect of encouraging skeletonization, rather than mummification, though all remains experienced some degree of mummification. In Western Australia, Voss and Dadour (2011) found that clothed pigs experienced statistically prolonged moist decomposition and a greater degree of maggots. The length of moist decomposition in the clothed Texas sample was found to be shorter in terms of ADD than the unclothed Texas sample, though the increased presence of maggots did match Voss and Dadour's (2011) findings .

It is important that this study be replicated and different variables addressed. The small sample size may have had an impact on the results of this study. In the future, researchers should attempt to broaden this research using more clothed individuals. These individuals should be spread out across the whole year, rather than concentrated in the early summer. Additionally, various types of clothing and material should be tested since different fabrics react differently with moisture (i.e. moisture wicking fabric commonly used in sportswear).

APPENDIX A: DATA COLLECTION FORM

Donation #					
Date:					
HEAD & NECK					
Fresh	Early	Adv	Skel	Mum	
NOTES					
TORSO					
Fresh	Early	Adv	Skel	Mum	
NOTES					
EXTREMETIES					
Fresh	Early	Adv	Skel	Mum	
NOTES					

DATE	
WEATHER	
TEMP	
RAINFALL	
HUMIDITY	
NOTES:	

Notes

APPENDIX B: DECOMPOSITION STAGE AND ADD DATA

The following data has been compiled from photos and notes. Original photos and notes are available at FACTS.

Black entries indicate there were photos and/or notes for that day. Red entries indicate absence of photos or notes for that day. If the stage remained the same on the next day of available data, information was inferred and filled in, but colored red. If the stage changed, the entries remained blank.

Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D14-2010	12/10/2010	f	f	f	f	f	f	13.6415
	12/11/2010				f	f	f	14.33
	12/12/2010				f	f	f	5.6625
	12/13/2010				f	f	f	5.762
	12/14/2010	e	e	e	f	f	f	13.673
	12/15/2010	e	e	e	f	f	f	17.755
	12/16/2010	e	e	e	e	e	e	11.3715
	12/17/2010	e	e	e	e	e	e	7.3445
	12/18/2010	e	e	e	e	e	e	6.8705
	12/19/2010	e	e	e	e	e	e	8.0775
	12/20/2010	e	e	e	e	e	e	15.38
	12/21/2010							17.91
	12/22/2010							12.965
	12/23/2010							14.44
	12/24/2010							12.0155
	12/25/2010							2.7825
	12/26/2010							3.2005
	12/27/2010							3.765
	12/28/2010							11.185
	12/29/2010							14.19
	12/30/2010							15.39
	12/31/2010							12.72
	1/1/2011							8.0685
	1/2/2011							5.1695
	1/3/2011							5.636
	1/4/2011							10.37
	1/5/2011							11.6715
	1/6/2011							9.747

	1/7/2011	a	m	a	a	a	a	11.5795
	1/8/2011		m		a	a	a	8.086
	1/9/2011		m		a	a	a	6.3215
	1/10/2011	m/s	m	m	a	a	a	3.7495
	1/11/2011	m/s	m	m	a	a	a	2.102
	1/12/2011	m/s	m	m	a	a	a	1.464
	1/13/2011	m/s	m	m	a	a	a	2.0175
	1/14/2011	m/s	m	m	a	a	a	4.5825
	1/15/2011	m/s	m	m	a	a	a	8.935
	1/16/2011	m/s	m	m	a	a	a	8.94
	1/17/2011	m/s	m	m	a	a	a	10.555
	1/18/2011	m/s	m	m	a	a	a	11.781
	1/19/2011	m/s	m	m	a	a	a	8.8875
	1/20/2011	m/s	m	m	a	a	a	7.346
	1/21/2011	m/s	m	m	a	a	a	2.903
	1/22/2011	m/s	m	m	a	a	a	6.0375
	1/23/2011	m/s	m	m	a	a	a	6.722
	1/24/2011	m/s	m	m	a	a	a	9.206
	1/25/2011	m/s	m	m	a	a	a	8.3385
	1/26/2011	m/s	m	m	a	a	a	6.5195
	1/27/2011	m/s	m	m	a	a	a	9.9475
	1/28/2011	m/s	m	m	a	a	a	11.6695
	1/29/2011	m/s	m	m	a	a	a	14.705
	1/30/2011	m/s	m	m	a	a	a	18.375
	1/31/2011	m/s	m	m	a	a	a	17.17
	2/1/2011	m/s	m	m				5.6505
	2/2/2011	m/s	m	m				0
	2/3/2011	m/s	m	m				0
	2/4/2011	m/s	m	m				0
	2/5/2011	m/s	m	m				5.09
	2/6/2011	m/s	m	m				11.87
	2/7/2011	m	m	m	m	m	m	5.541
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D03-2011	2/21/2011	e	e	e	e	e	e	20.66
	2/22/2011	e	e	e	e	e	e	14.785
	2/23/2011	e	e	e	e	e	e	18.655
	2/24/2011	e	e	e	e	e	e	19.03

2/25/2011	e	e	e	e	e	e	13.7815
2/26/2011	e	e	e	e	e	e	14.6115
2/27/2011	e	e	e	e	e	e	22.96
2/28/2011	e	e	e	e	e	e	15.325
3/1/2011	e	e	e	e	e	e	13.7905
3/2/2011	e	e	e	e	e	e	13.4835
3/3/2011		e	e	e	e	e	14.066
3/4/2011		e	e	e	e	e	19.01
3/5/2011		e	e	e	e	e	11.955
3/6/2011		e	e	e	e	e	9.376
3/7/2011		e	e	e	e	e	15.8545
3/8/2011		e	e	e	e	e	22.915
3/9/2011		e	e	e	e	e	15.105
3/10/2011		e	e	e	e	e	13.2515
3/11/2011	a	e	e	e	e	e	12.638
3/12/2011	a			e	e		20.19
3/13/2011	a			e	e		19.855
3/14/2011	a			e	e		12.848
3/15/2011	a	a	a	e	e	a	12.1685
3/16/2011	a	a	a			a	19.545
3/17/2011	a	a	a			a	22.85
3/18/2011	a	a	a			a	23.765
3/19/2011	a	a	a			a	22.005
3/20/2011	a	a	a			a	22.03
3/21/2011	a	a	a	a	a	a	23.615
3/22/2011		a	a			a	23.74
3/23/2011		a	a			a	23.905
3/24/2011		a	a			a	20.91
3/25/2011		a	a			a	23.97
3/26/2011		a	a			a	24.69
3/27/2011		a	a			a	17.215
3/28/2011	m	a	a	m	m	a	13.845
3/29/2011	m	a		m	m	a	15.505
3/30/2011	m	a		m	m	a	14.89
3/31/2011	m	a		m	m	a	15.846
4/1/2011	m	a		m	m	a	22.82
4/2/2011	m	a		m	m	a	21.585
4/3/2011	m	a		m	m	a	24.435
4/4/2011	m	a	m	m	m	a	15.985
4/5/2011	m	a	m	m	m	a	13.806
4/6/2011	m	a	m	m	m	a	20.72

	4/7/2011	m		m	m	m		23.855
	4/8/2011	m		m	m	m		27.885
	4/9/2011	m		m	m	m		26.7
	4/10/2011	m		m	m	m		27.52
	4/11/2011	m		m	m	m		21.155
	4/12/2011	m		m	m	m		19.285
	4/13/2011	m		m	m	m		19.68
	4/14/2011	m		m	m	m		25.335
	4/15/2011	m		m	m	m		20.87
	4/16/2011	m		m	m	m		18.5
	4/17/2011	m		m	m	m		19.3015
	4/18/2011	m		m	m	m		28.885
	4/19/2011	m		m	m	m		28.275
	4/20/2011	m	m	m	m	m	m	27.42
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D04-2011	3/11/2011	e	e	e	e	e	e	12.638
	3/12/2011			e	e	e	e	20.19
	3/13/2011			e	e	e	e	19.855
	3/14/2011	a	a	e	e	e	e	12.848
	3/15/2011	a	a					12.1685
	3/16/2011	a	a					19.545
	3/17/2011	a	a					22.85
	3/18/2011	a	a					23.765
	3/19/2011	a	a					22.005
	3/20/2011	a	a					22.03
	3/21/2011	a	a	a	a	a	a	23.615
	3/22/2011				a	a	a	23.74
	3/23/2011	m	m	m	a	a	a	23.905
	3/24/2011	m	m	m				20.91
	3/25/2011	m	m	m				23.97
	3/26/2011	m	m	m				24.69
	3/27/2011	m	m	m				17.215
	3/28/2011	m	m	m				13.845
	3/29/2011	m	m	m				15.505
	3/30/2011	m	m	m	m	m	m	14.89
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D10-2011	7/6/2011	e	e	e	e	e	e	30.555

	7/7/2011	e	e	e	e	e	e	30.195
	7/8/2011	e	e	e	e	e	e	31.01
	7/9/2011	a	e	e	e	e	e	31.445
	7/10/2011	a	a	a	e	e	e	31.37
	7/11/2011	a	a	a	e	e	a	30.905
	7/12/2011	a	a	a	e	e	a	31.84
	7/13/2011		a	a	e	e	a	31.425
	7/14/2011	m	a	a	e	e	a	31.66
	7/15/2011	m			e	e	a	33.22
	7/16/2011	m			e	e	a	31.505
	7/17/2011	m	m	m	e	e	a	30.72
	7/18/2011	m	m	m			a	30.935
	7/19/2011	m	m	m	m	m	a	30.8
	7/20/2011	m	m	m	m	m	m	29.955
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D11-2011	7/17/2011	e	e	e	e	e	e	30.72
	7/18/2011	e	e	e	e	e	e	30.935
	7/19/2011	e	e	e	e	e	e	30.8
	7/20/2011	e	e	e	e	e	e	29.955
	7/21/2011							31.505
	7/22/2011							31.645
	7/23/2011	a	s	a	a	a	a	32.095
	7/24/2011	a	s	a	a	a	a	33.2
	7/25/2011	m	s	m	m	m	a	32.585
	7/26/2011	m	s	m	m	m	m	33.75
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D12-2011	8/8/2011	e	e	e	e	e	e	33.985
	8/9/2011	e	e	e	e	e	e	33.695
	8/10/2011	e	e	e	e	e	e	32.89
	8/11/2011	e	e	e	e	e	e	33.75
	8/12/2011	a	a	a	e	e	e	33.51
	8/13/2011	a	a	a				31.65
	8/14/2011	a	a	a				31.51
	8/15/2011	a	a	a	a	a	a	32.22
	8/16/2011	m	m	m	a	a	a	31.355
	8/17/2011	m	m	m	a	a	a	32.12
	8/18/2011	m	m	m	m	m	a	31.29

	8/19/2011	m	m	m	m	m		33.005
	8/20/2011	m	m	m	m	m		32.715
	8/21/2011	m	m	m	m	m		31.28
	8/22/2011	m	m	m	m	m	m	31.555
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D19-2011	11/17/2011	f	f	f	f	f	f	10.083
	11/18/2011	f	f	f	f	f	f	11.3015
	11/19/2011				f	f		22
	11/20/2011				f	f		24.73
	11/21/2011	e	e	e	f	f	e	22.765
	11/22/2011	e	e	e	f	f	e	16.105
	11/23/2011	e	e	e	f	f	e	15.04
	11/24/2011	e	e	e			e	13.2775
	11/25/2011	e	e	e	e	e	e	18.92
	11/26/2011				e	e	e	13.785
	11/27/2011				e	e	e	5.5825
	11/28/2011	a	a	a	e	e	e	7.0945
	11/29/2011	a	a	a	e	e	e	10.053
	11/30/2011	a	a	a	e	e	e	9.1515
	12/1/2011	a	a	a	e	e	e	12.0485
	12/2/2011	a	a	a	e	e	e	15.585
	12/3/2011	a	a	a	e	e	a	16.45
	12/4/2011	a	a	a	e	e	a	12.345
	12/5/2011	a	a	a	e	e	a	4.4615
	12/6/2011	a	a	a	e	e	a	0.8485
	12/7/2011	a	a	a	e	e	a	2.92
	12/8/2011	a	a	a	e	e	a	4.514
	12/9/2011	a	a	a	e	e	a	9.546
	12/10/2011	a	a	a	e	e	a	8.68
	12/11/2011	a	a	a	e	e	a	7.405
	12/12/2011	a	a	a	e	e	a	11.365
	12/13/2011	a	a	a	e	e	a	16.75
	12/14/2011	a	a	a	a	a	a	19.625
	12/15/2011	a	a	a	a	a	a	14.365
	12/16/2011	a	a	a	a	a	a	9.79
	12/17/2011	a	a	a	a	a	a	10.199
	12/18/2011	a	a	a	a	a	a	12.515
	12/19/2011	a	a	a	a	a	a	15.885
	12/20/2011	a	a	a	a	a	a	9.543

12/21/2011	a	a	a	a	a	a	6.6585
12/22/2011		a	a	a	a	a	11.7405
12/23/2011	m	a	a	a	a	a	5.119
12/24/2011	m	a		a	a	a	5.2555
12/25/2011	m	a		a	a	a	6.49
12/26/2011	m	a		a	a	a	6.686
12/27/2011	m	a	m	a	a	a	8.3275
12/28/2011	m	a	m	a	a	a	8.552
12/29/2011	m	a	m	a	a	a	10.617
12/30/2011	m	a	m	a	a	a	13.5325
12/31/2011	m	a	m	a	a	a	13.348
1/1/2012	m	a	m	a	a	a	10.7355
1/2/2012	m	a	m	a	a	a	7.327
1/3/2012	m	a	m	a	a	a	6.292
1/4/2012	m	a	m	a	a	a	12.476
1/5/2012	m	a	m	a	a	a	13.116
1/6/2012	m	a	m	a	a	a	15.55
1/7/2012	m	a	m	a	a	a	14.49
1/8/2012	m	a	m	a	a	a	11.5535
1/9/2012	m	a	m	a	a	a	9.6525
1/10/2012	m	a	m	a	a	a	9.0075
1/11/2012	m	a	m	a	a	a	11.25
1/12/2012	m	a	m	a	a	a	3.8725
1/13/2012	m	m	m	a	a	a	5.576
1/14/2012	m	m	m			a	7.67
1/15/2012	m	m	m			a	8.3625
1/16/2012	m	m	m			a	18.47
1/17/2012	m	m	m			a	15.516
1/18/2012	m	m	m			a	9.905
1/19/2012	m	m	m			a	15.1585
1/20/2012	m	m	m			a	16.415
1/21/2012	m	m	m			a	11.2005
1/22/2012	m	m	m			a	15.31
1/23/2012	m	m	m			a	12.309
1/24/2012	m	m	m			a	12.313
1/25/2012	m	m	m			a	13.215
1/26/2012	m	m	m			a	12.0695
1/27/2012	m	m	m			a	10.2175
1/28/2012	m	m	m			a	9.4405
1/29/2012	m	m	m			a	8.0915
1/30/2012	m	m	m			a	9.995

	1/31/2012	m	m	m			a	16.26
	2/1/2012	m	m	m			a	17.985
	2/2/2012	m	m	m			a	17.065
	2/3/2012	m	m	m			a	20.31
	2/4/2012	m	m	m			a	14.26
	2/5/2012	m	m	m			a	6.1065
	2/6/2012	m	m	m	m	m	a	5.8345
	2/7/2012	m	m	m	m	m		10.026
	2/8/2012	m	m	m	m	m		8.687
	2/9/2012	m	m	m	m	m		7.6535
	2/10/2012	m	m	m	m	m	m	10.745
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D21-2011	12/1/2011	f	f	f	f	f	f	12.0485
	12/2/2011	e	e	e	f	f	e	15.585
	12/3/2011	e	e	e	f	f	e	16.45
	12/4/2011	e	e	e	f	f	e	12.345
	12/5/2011	e	e	e	f	f	e	4.4615
	12/6/2011	e	e	e	f	f	e	0.8485
	12/7/2011	e	e	e	e	e	e	2.92
	12/8/2011	e	e	e	e	e	e	4.514
	12/9/2011	e	e	e	e	e	e	9.546
	12/10/2011	e	e	e	e	e	e	8.68
	12/11/2011	e	e	e	e	e	e	7.405
	12/12/2011	e	e	e	e	e	e	11.365
	12/13/2011	e	e	e	e	e	e	16.75
	12/14/2011	e	e	e	e	e	e	19.625
	12/15/2011	e	e	e	e	e	e	14.365
	12/16/2011	e	e	e	e	e	e	9.79
	12/17/2011	e	e	e	e	e	e	10.199
	12/18/2011	e	e	e	e	e	e	12.515
	12/19/2011	e	e	e	e	e	e	15.885
	12/20/2011	e	e	e	e	e	e	9.543
	12/21/2011	a	e	e	e	e	e	6.6585
	12/22/2011	a	e	e	e	e	e	11.7405
	12/23/2011	a	e	e	e	e	e	5.119
	12/24/2011	a	e	e	e	e	e	5.2555
	12/25/2011	a	e	e	e	e	e	6.49
	12/26/2011	a	e	e	e	e	e	6.686
	12/27/2011	a	e	e	e	e	e	8.3275

12/28/2011	a	e	e	e	e	e	8.552
12/29/2011	a	e	e	e	e	e	10.617
12/30/2011	a	e	e	e	e	e	13.5325
12/31/2011	a	e	e	e	e	e	13.348
1/1/2012	a	e	e	e	e	e	10.7355
1/2/2012	a	e	e	e	e	e	7.327
1/3/2012	a	e	e	e	e	e	6.292
1/4/2012	a	e	e	e	e	e	12.476
1/5/2012	a	e	e	e	e	e	13.116
1/6/2012	a	e	e	e	e	e	15.55
1/7/2012	a	e	e	e	e	e	14.49
1/8/2012	a	e	e	e	e	e	11.5535
1/9/2012	a	e	e	e	e	e	9.6525
1/10/2012	a	e	e	e	e	e	9.0075
1/11/2012	a	e	e	e	e	e	11.25
1/12/2012	a	e	e	e	e	e	3.8725
1/13/2012	a	e	e	e	e	e	5.576
1/14/2012	a	e	e	e	e	e	7.67
1/15/2012	a	e	e	e	e	e	8.3625
1/16/2012	a	e	e	e	e	e	18.47
1/17/2012	a	e	e	e	e	e	15.516
1/18/2012	a	e	e	e	e	e	9.905
1/19/2012	a	e	e	e	e	e	15.1585
1/20/2012	a	e	e	e	e	e	16.415
1/21/2012	a	e	e	e	e	e	11.2005
1/22/2012	a	e	e	e	e	e	15.31
1/23/2012	a	e	e	e	e	e	12.309
1/24/2012	a	e	e	e	e	e	12.313
1/25/2012	a	e	e	e	e	e	13.215
1/26/2012	a	e	e	e	e	e	12.0695
1/27/2012	a	e	e	e	e		10.2175
1/28/2012	a	e	e	e	e		9.4405
1/29/2012	a	e	e	e	e		8.0915
1/30/2012	a	e	e	e	e	a	9.995
1/31/2012	a					a	16.26
2/1/2012	a					a	17.985
2/2/2012	a					a	17.065
2/3/2012	a	a	a	a	a	a	20.31
2/4/2012		a	a	a	a	a	14.26
2/5/2012		a	a	a	a	a	6.1065
2/6/2012	m	a	a	a	a	a	5.8345

2/7/2012	m	a	a	a	a	a	10.026
2/8/2012	m	a	a	a	a	a	8.687
2/9/2012	m	a	a	a	a	a	7.6535
2/10/2012	m	a	a	a	a	a	10.745
2/11/2012	m	a	a	a	a	a	6.211
2/12/2012	m	a	a	a	a	a	2.064
2/13/2012	m	a	a	a	a	a	10.1315
2/14/2012	m	a	a	a	a	a	12.497
2/15/2012	m	a	a	a	a	a	17.895
2/16/2012	m	a	a	a	a	a	13.13
2/17/2012	m	a	a	a	a	a	11.4
2/18/2012	m	a	a	a	a	a	10.865
2/19/2012	m	a	a	a	a	a	10.3015
2/20/2012	m	a	a	a	a	a	13.099
2/21/2012	m	a	a	a	a	a	16.94
2/22/2012	m	a	a	a	a	a	20.91
2/23/2012	m	a	a	a	a	a	22.33
2/24/2012	m	a	a	a	a	a	11.96
2/25/2012	m	a	a	a	a	a	9.136
2/26/2012	m	a	a	a	a	a	9.1605
2/27/2012	m	a	a	a	a	a	16.23
2/28/2012	m	a	a	a	a	a	19.545
2/29/2012	m	a	a	a	a	a	18.1
3/1/2012	m	a	a	a	a	a	15.83
3/2/2012	m	a	a	a	a	a	21.34
3/3/2012	m	a	a	a	a	a	11.7095
3/4/2012	m	a	a	a	a	a	11.9605
3/5/2012	m	a	a	a	a	a	14.1875
3/6/2012	m	a	a	a	a	a	16.81
3/7/2012	m	a	a	a	a	a	19.11
3/8/2012	m	a	a	a	a	a	16.37
3/9/2012	m	a	a	a	a	a	6.6205
3/10/2012	m	a	a	a	a	a	7.6075
3/11/2012	m	a	a	a	a	a	16.965
3/12/2012	m	a	a	a	a	a	16.0885
3/13/2012	m	a	a	a	a	a	20.66
3/14/2012	m	a	a	a	a	a	22.175
3/15/2012	m	a	a	a	a	a	22.565
3/16/2012	m	a	a	a	a	a	22.535
3/17/2012	m		a	a	a	a	22.17
3/18/2012	m		a	a	a	a	21.15

3/19/2012	m		a	a	a	a	22.62
3/20/2012	m		a	a	a	a	15.335
3/21/2012	m		a	a	a	a	14.076
3/22/2012	m		a	a	a	a	17.7495
3/23/2012	m	m	a	a	a	a	17.85
3/24/2012	m	m	a	a	a	a	18.75
3/25/2012	m	m	a	a	a	a	19.995
3/26/2012	m	m	a	a	a	a	20.11
3/27/2012	m	m	a	a	a	a	19.37
3/28/2012	m	m	a	a	a	a	19.705
3/29/2012	m	m	a	a	a	a	21.025
3/30/2012	m	m	a	a	a	a	23.61
3/31/2012	m	m	a	a	a	a	24.27
4/1/2012	m	m	a	a	a	a	24.66
4/2/2012	m	m	a	a	a	a	23.11
4/3/2012	m	m	a	a	a	a	22.145
4/4/2012	m	m	a	a	a	a	20.235
4/5/2012	m	m	a	a	a	a	23.4
4/6/2012	m	m	a	a	a	a	21.78
4/7/2012	m	m				a	24.105
4/8/2012	m	m				a	21.42
4/9/2012	m	m				a	21.07
4/10/2012	m	m				a	21
4/11/2012	m	m				a	20.89
4/12/2012	m	m				a	24.17
4/13/2012	m	m				a	23.545
4/14/2012	m	m				a	23.415
4/15/2012	m	m				a	19.08
4/16/2012	m	m				a	17.265
4/17/2012	m	m				a	22.395
4/18/2012	m	m				a	20.835
4/19/2012	m	m				a	20.945
4/20/2012	m	m	m	m	m	a	19.435
4/21/2012	m	m	m	m	m		19.28
4/22/2012	m	m	m	m	m		21.155
4/23/2012	m	m	m	m	m		20.725
4/24/2012	m	m	m	m	m		20.995
4/25/2012	m	m	m	m	m		26.595
4/26/2012	m	m	m	m	m		26.555
4/27/2012	m	m	m	m	m		25.845
4/28/2012	m	m	m	m	m		25.995

	4/29/2012	m	m	m	m	m		25.98
	4/30/2012	m	m	m	m	m		26.09
	5/1/2012	m	m	m	m	m	m	26.34
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D23-2011	12/19/2011	f	f	f	f	f	f	15.885
	12/20/2011	f	f	f	f	f	f	9.543
	12/21/2011	f	f	f	f	f	f	6.6585
	12/22/2011	f	f	f	f	f	f	11.7405
	12/23/2011	e	f	f	f	f	f	5.119
	12/24/2011	e						5.2555
	12/25/2011	e						6.49
	12/26/2011	e						6.686
	12/27/2011	e	e	e	e	e	e	8.3275
	12/28/2011	e	e	e	e	e	e	8.552
	12/29/2011	e	e	e	e	e	e	10.617
	12/30/2011	e	e	e	e	e	e	13.5325
	12/31/2011	e	e	e	e	e	e	13.348
	1/1/2012	e	e	e	e	e	e	10.7355
	1/2/2012	e	e	e	e	e	e	7.327
	1/3/2012	e	e	e	e	e	e	6.292
	1/4/2012	e	e	e	e	e	e	12.476
	1/5/2012	e	e	e	e	e	e	13.116
	1/6/2012	e	e	e	e	e	e	15.55
	1/7/2012	e	e	e	e	e	e	14.49
	1/8/2012	e	e	e	e	e	e	11.5535
	1/9/2012	e	e	e	e	e	e	9.6525
	1/10/2012	e	e	e	e	e	e	9.0075
	1/11/2012	e	e	e	e	e	e	11.25
	1/12/2012	e	e	e	e	e	e	3.8725
	1/13/2012	e	e	e	e	e	e	5.576
	1/14/2012				e	e	e	7.67
	1/15/2012				e	e	e	8.3625
	1/16/2012	a	a	a	e	e	e	18.47
	1/17/2012	a	a	a	e	e	e	15.516
	1/18/2012	a	a	a	e	e	e	9.905
	1/19/2012	a	a	a	e	e	e	15.1585
	1/20/2012	a	a	a	e	e	a	16.415
	1/21/2012	a	a	a			a	11.2005

	1/22/2012	a	a	a			a	15.31
	1/23/2012	a	a	a	a	a	a	12.309
	1/24/2012	a	a	a	a	a	a	12.313
	1/25/2012	a	a	a	a	a	a	13.215
	1/26/2012	a	a	m	a	a	a	12.0695
	1/27/2012	a	a	m	a	a	a	10.2175
	1/28/2012	a		m	a	a	a	9.4405
	1/29/2012	a		m	a	a	a	8.0915
	1/30/2012	a	m	m	a	a	a	9.995
	1/31/2012	a	m	m	a	a	a	16.26
	2/1/2012	a	m	m	a	a	a	17.985
	2/2/2012	a	m	m	a	a	a	17.065
	2/3/2012	a	m	m	a	a	a	20.31
	2/4/2012	a	m	m	a	a	a	14.26
	2/5/2012	a	m	m	a	a	a	6.1065
	2/6/2012	a	m	m	m	m	a	5.8345
	2/7/2012	a	m	m	m	m	a	10.026
	2/8/2012	a	m	m	m	m	a	8.687
	2/9/2012	a	m	m	m	m	a	7.6535
	2/10/2012	a	m	m	m	m	a	10.745
	2/11/2012		m	m	m	m		6.211
	2/12/2012		m	m	m	m		2.064
	2/13/2012	m	m	m	m	m	m	10.1315
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D02-2012	1/6/2012	f	f	f	f	f	f	15.55
	1/7/2012	e	e	e	f	f	f	14.49
	1/8/2012	e	e	e	f	f	f	11.5535
	1/9/2012	e	e	e	f	f	f	9.6525
	1/10/2012	e	e	e	f	f	f	9.0075
	1/11/2012	e	e	e	e	e	e	11.25
	1/12/2012	e	e	e	e	e	e	3.8725
	1/13/2012	e	e	e	e	e	e	5.576
	1/14/2012	e	e	e	e	e	e	7.67
	1/15/2012	e	e	e	e	e	e	8.3625
	1/16/2012	e	e	e	e	e	e	18.47
	1/17/2012	e	e	e	e	e	e	15.516
	1/18/2012	e	e	e	e	e	e	9.905
	1/19/2012	e	e	e	e	e	e	15.1585
	1/20/2012	e	e	e	e	e	e	16.415

1/21/2012	e	e	e	e	e	e	11.2005
1/22/2012	e	e	e	e	e	e	15.31
1/23/2012	e	e	e	e	e	e	12.309
1/24/2012	a	a	e	e	e	e	12.313
1/25/2012	a	a	a	e	e	e	13.215
1/26/2012	a	a	a	e	e	e	12.0695
1/27/2012	a	a	a	e	e	e	10.2175
1/28/2012	a	a	a	e	e	e	9.4405
1/29/2012	a	a	a	e	e	e	8.0915
1/30/2012	a	a	a	e	e	e	9.995
1/31/2012	a	a	a	e	e	e	16.26
2/1/2012	a	a	a	e	e	e	17.985
2/2/2012	a	a	a	e	e	e	17.065
2/3/2012	a	a	a	e	e	e	20.31
2/4/2012	a	a	a				14.26
2/5/2012	a	a	a				6.1065
2/6/2012	a	a	a	a	a	a	5.8345
2/7/2012	m	a	a	a	a	a	10.026
2/8/2012	m	m	m	a	a	a	8.687
2/9/2012	m	m	m	a	a	a	7.6535
2/10/2012	m	m	m	a	a	a	10.745
2/11/2012	m	m	m	a	a	a	6.211
2/12/2012	m	m	m	a	a	a	2.064
2/13/2012	m	m	m	a	a	a	10.1315
2/14/2012	m	m	m	a	a	a	12.497
2/15/2012	m	m	m	a	a	a	17.895
2/16/2012	m	m	m	a	a	a	13.13
2/17/2012	m	m	m	a	a	a	11.4
2/18/2012	m	m	m	a	a	a	10.865
2/19/2012	m	m	m	a	a	a	10.3015
2/20/2012	m	m	m	a	a	a	13.099
2/21/2012	m	m	m	a	a	a	16.94
2/22/2012	m	m	m	a	a	a	20.91
2/23/2012	m	m	m	a	a	a	22.33
2/24/2012	m	m	m	a	a	a	11.96
2/25/2012	m	m	m	a	a	a	9.136
2/26/2012	m	m	m	a	a	a	9.1605
2/27/2012	m	m	m	a	a	a	16.23
2/28/2012	m	m	m	a	a	a	19.545
2/29/2012	m	m	m	a	a	a	18.1
3/1/2012	m	m	m	a	a	a	15.83

	3/2/2012	m	m	m	a	a	a	21.34
	3/3/2012	m	m	m	a	a	a	11.7095
	3/4/2012	m	m	m	a	a	a	11.9605
	3/5/2012	m	m	m	a	a	a	14.1875
	3/6/2012	m	m	m				16.81
	3/7/2012	m	m	m	m	m	m	
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D03-2012	1/29/2012	f	f	f	f	f	f	8.0915
	1/30/2012	e	f	f	f	f	f	9.995
	1/31/2012	e	f	f	f	f	f	16.26
	2/1/2012	e	e	e	f	f	f	17.985
	2/2/2012	e	e	e	f	f	f	17.065
	2/3/2012	e	e	e	f	f	f	20.31
	2/4/2012	e	e	e	f	f	f	14.26
	2/5/2012	e	e	e	f	f	f	6.1065
	2/6/2012	e	e	e	f	f	f	5.8345
	2/7/2012	e	e	e	e	e	e	10.026
	2/8/2012	e	e	e	e	e	e	8.687
	2/9/2012	e	e	e	e	e	e	7.6535
	2/10/2012	e	e	e	e	e	e	10.745
	2/11/2012	e	e	e	e	e	e	6.211
	2/12/2012	e	e	e	e	e	e	2.064
	2/13/2012	e	e	e	e	e	e	10.1315
	2/14/2012	e	e	e	e	e	e	12.497
	2/15/2012	e	e	e	e	e	e	17.895
	2/16/2012	e	e	e	e	e	e	13.13
	2/17/2012	e	e	e	e	e	e	11.4
	2/18/2012		e		e	e	e	10.865
	2/19/2012		e		e	e	e	10.3015
	2/20/2012	a	e	a	e	e	e	13.099
	2/21/2012	a		a	e	e	e	16.94
	2/22/2012	a	a	a	e	e	e	20.91
	2/23/2012	a	a	a	e	e		22.33
	2/24/2012	a	a	a	e	e	a	11.96
	2/25/2012	a	a	a			a	9.136
	2/26/2012	a	a	a			a	9.1605
	2/27/2012	a	a	a	a	a	a	16.23
	2/28/2012	a	a	a	a	a	a	19.545
	2/29/2012	a	a	a	a	a	a	18.1

	3/1/2012	m	a	a	a	a	a	15.83
	3/2/2012	m						21.34
	3/3/2012	m						11.7095
	3/4/2012	m						11.9605
	3/5/2012	m	m	m	m	m	m	14.1875
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D04-2012	1/28/2012	f	f	f	f	f	f	9.4405
	1/29/2012	f	f	f	f	f	f	8.0915
	1/30/2012	f	f	f	f	f	f	9.995
	1/31/2012	f	f	f	f	f	f	16.26
	2/1/2012	e	f	f	f	f	f	17.985
	2/2/2012	e	f	f	f	f	f	17.065
	2/3/2012	e	f	f	f	f	f	20.31
	2/4/2012	e						14.26
	2/5/2012	e						6.1065
	2/6/2012	e	e	e	e	e	e	5.8345
	2/7/2012	e	e	e	e	e	e	10.026
	2/8/2012	e	e	e	e	e	e	8.687
	2/9/2012	e	e	e	e	e	e	7.6535
	2/10/2012	e	e	e	e	e	e	10.745
	2/11/2012	e	e	e	e	e	e	6.211
	2/12/2012	e	e	e	e	e	e	2.064
	2/13/2012	e	e	e	e	e	e	10.1315
	2/14/2012	e	e	e	e	e	e	12.497
	2/15/2012	e	e	e	e	e	e	17.895
	2/16/2012	e	e	e	e	e	e	13.13
	2/17/2012	e	e	e	e	e	e	11.4
	2/18/2012	e	e	e	e	e	e	10.865
	2/19/2012	e	e	e	e	e	e	10.3015
	2/20/2012	e	e	e	e	e	e	13.099
	2/21/2012	e	e	e	e	e	e	16.94
	2/22/2012	e	e	e	e	e	e	20.91
	2/23/2012	e	e	e	e	e	e	22.33
	2/24/2012	e	e	e	e	e	e	11.96
	2/25/2012		e	e	e	e	e	9.136
	2/26/2012		e	e	e	e	e	9.1605
	2/27/2012	a	e	e	e	e	e	16.23
	2/28/2012	a	e	e	e	e	e	19.545
	2/29/2012	a	e	e	e	e	e	18.1

	3/1/2012	a	e	e	e	e	e	15.83
	3/2/2012	a	e	e	e	e	e	21.34
	3/3/2012	a	e	e	e	e	e	11.7095
	3/4/2012	a	e	e	e	e	e	11.9605
	3/5/2012	a	e	e	e	e	e	14.1875
	3/6/2012							16.81
	3/7/2012	a	a	a	e	e	e	19.11
	3/8/2012	a	a	a	e	e	e	16.37
	3/9/2012	a	a	a	e	e	e	6.6205
	3/10/2012	a	a	a	e	e	e	7.6075
	3/11/2012	a	a	a	e	e	e	16.965
	3/12/2012	a	a	a	e	e	e	16.0885
	3/13/2012	a	a	a	e	a	e	20.66
	3/14/2012	a	a	a	e	a	a	22.175
	3/15/2012	a	a	a	e	a	a	22.565
	3/16/2012	a	a	a	e	a	a	22.535
	3/17/2012	a	a	a		a	a	22.17
	3/18/2012	a	a	a		a	a	21.15
	3/19/2012	a	a	a	a	a	a	22.62
	3/20/2012	m	a	a	a	a	a	15.335
	3/21/2012	m	a	a	a	a	a	14.076
	3/22/2012	m		a	a	a	a	17.7495
	3/23/2012	m	m	a	a	a	a	17.85
	3/24/2012	m	m					18.75
	3/25/2012	m	m					19.995
	3/26/2012	m	m					20.11
	3/27/2012	m	m					19.37
	3/28/2012	m	m	m	m	m	m	19.705
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D08-2012	3/17/2012	f	f	f	f	f	f	22.17
	3/18/2012		f	f	f	f	f	21.15
	3/19/2012	e	f	f	f	f	f	22.62
	3/20/2012	e	e	e	e	e	e	15.335
	3/21/2012	e	e	e	e	e	e	14.076
	3/22/2012	e	e	e	e	e	e	17.7495
	3/23/2012	a	a	a	e	e	e	17.85
	3/24/2012	a	a	a				18.75
	3/25/2012	a	a	a				19.995
	3/26/2012	a	a	a	a	a	a	20.11

	3/27/2012	a	a	a	a	a	a	19.37
	3/28/2012	a	a	a	a	a	a	19.705
	3/29/2012						a	21.025
	3/30/2012						a	23.61
	3/31/2012						a	24.27
	4/1/2012						a	24.66
	4/2/2012						a	23.11
	4/3/2012	m	m	m	m	m	a	22.145
	4/4/2012	m	m	m	m	m	m	20.235
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D11-2012	4/3/2012	f	e	e	e	e	e	22.145
	4/4/2012	e	e	e	e	e	e	20.235
	4/5/2012	e	e	e	e	e	e	23.4
	4/6/2012	e	e	e	e	e	e	21.78
	4/7/2012	e	e	e	e	e	e	24.105
	4/8/2012	e	e	e	e	e	e	21.42
	4/9/2012	e	e	e	e	e	e	21.07
	4/10/2012	e	e	e	e	e	e	21
	4/11/2012	e	e	e	e	e	e	20.89
	4/12/2012							24.17
	4/13/2012							23.545
	4/14/2012							23.415
	4/15/2012							19.08
	4/16/2012	a	a	a	a	a	a	17.265
	4/17/2012	a	a	a	a	a	a	22.395
	4/18/2012	a	a	a	a	a	a	20.835
	4/19/2012	a	a	a	a	a	a	20.945
	4/20/2012	a	a	a	a	a	a	19.435
	4/21/2012		a	a	a	a	a	19.28
	4/22/2012		a	a	a	a	a	21.155
	4/23/2012	m	a	a	a	a	a	20.725
	4/24/2012	m	a	m	a	a	a	20.995
	4/25/2012	m	m	m	a	a	a	26.595
	4/26/2012	m	m	m	a	a	a	26.555
	4/27/2012	m	m	m	a	a	a	25.845
	4/28/2012	m	m	m			a	25.995
	4/29/2012	m	m	m			a	25.98
	4/30/2012	m	m	m	m	m	a	26.09
	5/1/2012	m	m	m	m	m	a	26.34

	5/2/2012	m	m	m	m	m	a	25.63
	5/3/2012	m	m	m	m	m	a	27.975
	5/4/2012	m	m	m	m	m	a	29.06
	5/5/2012	m	m	m	m	m	a	28.745
	5/6/2012	m	m	m	m	m	m	25.495
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D12-2012	4/11/2012	f	f	f	f	f	f	20.89
	4/12/2012							24.17
	4/13/2012							23.545
	4/14/2012							23.415
	4/15/2012							19.08
	4/16/2012	e	e	e	e	e	e	17.265
	4/17/2012	a	a	a	e	e	e	22.395
	4/18/2012	a	a	a	e	e	e	20.835
	4/19/2012	a	a	a	a	a	a	20.945
	4/20/2012	a	a	a	a	a	a	19.435
	4/21/2012							19.28
	4/22/2012							21.155
	4/23/2012	m	m	m	m	m	m	20.725
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D14-2012	5/1/2012	e	e	e	e	e	e	26.34
	5/2/2012	e	e	e	e	e	e	25.63
	5/3/2012	e	e	e	e	e	e	27.975
	5/4/2012	a	e	e	e	e	e	29.06
	5/5/2012	a	a	a	a	a	a	28.745
	5/6/2012	a	a	a	a	a	a	25.495
	5/7/2012	a	a	a	a	a	a	26.25
	5/8/2012	a	s	a	a	a	a	18.275
	5/9/2012	m	s	a	m	m	a	21.595
	5/10/2012	m	s	a	m	m	a	19.26
	5/11/2012	m	s	a	m	m	a	21.63
	5/12/2012	m	s	m	m	m	a	21.435
	5/13/2012	m	s	m	m	m	a	22.025
	5/14/2012	m	s	m	m	m	a	22.17
	5/15/2012	m	s	m	m	m	m	16.775
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)

D15-2012	5/8/2012	f	f	f	f	f	f	18.275
	5/9/2012	f	f	f	f	f	f	21.595
	5/10/2012	e	f	f	f	f	f	19.26
	5/11/2012	e	f	f	f	f	f	21.63
	5/12/2012	e	e	e	e	e	e	21.435
	5/13/2012	e	e	e	e	e	e	22.025
	5/14/2012	e	e	e	e	e	e	22.17
	5/15/2012	e	e	e	e	e	e	16.775
	5/16/2012	a	e	e	e	e	e	21.925
	5/17/2012	a	a	a	e	e	e	23.155
	5/18/2012	a	a	a	e	e	a	23.115
	5/19/2012	a	a	a	e	e	a	26.19
	5/20/2012	m	a	a	a	a	a	25.87
	5/21/2012	m	a	a	a	a	a	25.08
	5/22/2012	m	m	m	a	a	a	25.75
	5/23/2012	m	m	m	a	a	a	25.72
	5/24/2012	m	m	m	a	a	a	28.75
	5/25/2012	m	m	m	a	a	a	28.71
	5/26/2012	m	m	m	m	m	m	28.865
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D16-2012	5/10/2012	e	f	f	f	f	f	19.26
	5/11/2012	e	e	e	e	e	e	21.63
	5/12/2012	e	e	e	e	e	e	21.435
	5/13/2012	a	e	e	e	e	e	22.025
	5/14/2012	a	e	e	e	e	e	22.17
	5/15/2012	a	e	e	e	e	a	16.775
	5/16/2012	a	e	e	e	e	a	21.925
	5/17/2012	a	a	a	a	a	a	23.155
	5/18/2012	a	a	a	a	a	a	23.115
	5/19/2012	a	a	a	a	a	a	26.19
	5/20/2012	a	a	a	a	a	a	25.87
	5/21/2012	a	a	a	a	a	a	25.08
	5/22/2012	a	a	a	a	a	a	25.75
	5/23/2012	a	a	a	a	a	a	25.72
	5/24/2012	a	a	a	a	a	a	28.75
	5/25/2012	a	a	a	a	a	a	28.71
	5/26/2012	a	a	a	a	a	a	28.865
	5/27/2012	m	a	a	a	a	a	27.64
	5/28/2012	m	a	a	a	a	a	28.88

	5/29/2012	m	a	a	a	a	a	29.57
	5/30/2012	m	a	a	a	a	a	29.245
	5/31/2012	m	a	a	a	a	a	27.705
	6/1/2012	m	a	a	a	a	a	25.83
	6/2/2012	m	a	a	a	a	a	25.465
	6/3/2012	m	a	m	a	m	a	26.84
	6/4/2012	m	m	m	m	m	a	27.505
	6/5/2012	m	m	m	m	m	a	26.82
	6/6/2012	m	m	m	m	m	a	26.485
	6/7/2012	m	m	m	m	m	a	26.515
	6/8/2012	m	m	m	m	m	a	23.465
	6/9/2012	m	m	m	m	m	a	23.935
	6/10/2012	m	m	m	m	m	a	28.995
	6/11/2012	m	m	m	m	m	a	30.605
	6/12/2012	m	m	m	m	m	a	29.12
	6/13/2012	m	m	m	m	m	a	29.615
	6/14/2012	m	m	m	m	m	a	30.115
	6/15/2012	m	m	m	m	m	a	30.905
	6/16/2012	m	m	m	m	m	a	31.305
	6/17/2012	m	m	m	m	m	a	29.165
	6/18/2012	m	m	m	m	m	a	28.37
	6/19/2012	m	m	m	m	m	a	29.255
	6/20/2012	m	m	m	m	m	a	25.62
	6/21/2012	m	m	m	m	m	a	29.52
	6/22/2012	m	m	m	m	m	a	28.185
	6/23/2012	m	m	m	m	m	a	29
	6/24/2012	m	m	m	m	m	a	30.445
	6/25/2012	m	m	m	m	m		31.92
	6/26/2012	m	m	m	m	m	m	32.6
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D23-2012	6/19/2012	e	e	e	e	e	e	29.255
	6/20/2012	e	e	e	e	e	e	25.62
	6/21/2012	e	e	e	e	e	e	29.52
	6/22/2012	e	e	e	e	e	e	28.185
	6/23/2012	a	a	a	e	e	e	29
	6/24/2012	a	a	a	a	a	a	30.445
	6/25/2012	a	a	a	a	a	a	31.92
	6/26/2012	a	a	a	a	a	a	32.6
	6/27/2012	a	a	m	a	a	a	32.535

	6/28/2012	m	a	m	a	a	a	31.065
	6/29/2012	m	a	m	m	m	a	29.44
	6/30/2012	m	a	m	m	m	a	27.52
	7/1/2012	m	a	m	m	m	a	27.915
	7/2/2012	m	m	m	m	m	a	31.075
	7/3/2012	m	m	m	m	m	m	29.405
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D24-2012	6/22/2012	e	f	f	f	f	f	28.185
	6/23/2012	e	e	e	e	e	e	29
	6/24/2012	e	e	e	e	e	e	30.445
	6/25/2012	e	e	e	e	e	e	31.92
	6/26/2012	a	a	a	e	e	e	32.6
	6/27/2012	a	a	a	e	a	a	32.535
	6/28/2012	a	a	a	a	a	a	31.065
	6/29/2012	a	a	a	a	a	a	29.44
	6/30/2012	m	m	m	m	m	a	27.52
	7/1/2012	m	m	m	m	m	a	27.915
	7/2/2012	m	m	m	m	m	m	31.075
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D30-2012	7/30/2012	e	e	e	e	e	e	30.005
	7/31/2012	a	a	a	e	e	e	31.495
	8/1/2012	a	a	a	e	e	e	31.71
	8/2/2012	a	a	a	e	e	e	31.645
	8/3/2012	a	a	a	a	a	e	30.92
	8/4/2012	a	a		a	a		31.96
	8/5/2012	a	a		a	a		29.88
	8/6/2012	a	a	m	a	a	a	29.695
	8/7/2012	a		m			a	31.025
	8/8/2012	a		m			a	30.31
	8/9/2012	a		m			a	31.66
	8/10/2012	a		m			a	32.43
	8/11/2012	a		m			a	30.81
	8/12/2012	a		m			a	31.355
	8/13/2012	a		m			a	32.145
	8/14/2012	a	m	m	m	m	a	31.76
	8/15/2012	a	m	m	m	m	a	31.765
	8/16/2012	a	m	m	m	m	a	31.775

	8/17/2012		m	m	m	m		31.59
	8/18/2012		m	m	m	m		29.76
	8/19/2012		m	m	m	m		26.455
	8/20/2012		m	m	m	m		28.05
	8/21/2012		m	m	m	m		27.85
	8/22/2012	m	m	m	m	m	a	27.74
	8/23/2012	m	m	m	m	m	a	28.655
	8/24/2012	m	m	m	m	m	a	29.94
	8/25/2012	m	m	m	m	m	a	31.19
	8/26/2012	m	m	m	m	m	a	31.355
	8/27/2012	m	m	m	m	m	a	29.18
	8/28/2012	m	m	m	m	m		30.15
	8/29/2012	m	m	m	m	m	m	31.555
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D04-2013	1/18/2013	f	f	f	f	f	f	8.0705
	1/19/2013	f	f	f	f	f	f	9.7605
	1/20/2013	f	f	f	f	f	f	11.8455
	1/21/2013	f	f	f	f	f	f	13.3735
	1/22/2013	e	f	f	f	f	f	13.484
	1/23/2013	e	f	f	f	f	f	13.4725
	1/24/2013	e	e	e	e	e	e	18.09
	1/25/2013	e	e	e	e	e	e	19.825
	1/26/2013	e	e	e	e	e	e	15.015
	1/27/2013	e	e	e	e	e	e	19.04
	1/28/2013	e	e	e	e	e	e	21.6
	1/29/2013	e	e	e	e	e	e	20.19
	1/30/2013	e	e	e	e	e	e	7.225
	1/31/2013	e	e	e	e	e	e	8.466
	2/1/2013	a	e	e	e	e	e	12.835
	2/2/2013	a	e		e	e		13.4545
	2/3/2013	a	e		e	e		14.035
	2/4/2013	a	e	a	e	e	a	16.435
	2/5/2013	a	e	a	e	e	a	16.975
	2/6/2013	a	e	a	e	e	a	17.84
	2/7/2013	a	e	a	e	a	a	20.225
	2/8/2013	a	e	a	e	a	a	14.085
	2/9/2013	a	e	a	e	a	a	13.655
	2/10/2013	a	e	a	e	a	a	14.64
	2/11/2013	a	e	a	e	a	a	10.655

2/12/2013	a	e	a	a	a	a	15.19
2/13/2013	a	e	a	a	a	a	9.227
2/14/2013	a	e	a	a	a	a	10.075
2/15/2013	m	e	a	a	a	a	10.2215
2/16/2013	m	e	a	a	a	a	8.4815
2/17/2013	m	e	a	a	a	a	11.0345
2/18/2013	m	e	a	a	a	a	19.865
2/19/2013	m	e	a	a	a	a	12.615
2/20/2013	m	e	a	a	a	a	14.645
2/21/2013	m	e	a	a	a	a	16.845
2/22/2013	m	e	a	a	a	a	11.3985
2/23/2013	m	e	a	a	a	a	13.9075
2/24/2013	m	e	a	a	a	a	11.4605
2/25/2013	m	e	a	a	a	a	12.945
2/26/2013	m	e	a	a	a	a	12.109
2/27/2013	m	e	a	a	a	a	11.056
2/28/2013	m	e	a	a	a	a	8.7525
3/1/2013	m	e	a	a	a	a	9.389
3/2/2013	m	e	a	a	a	a	9.54
3/3/2013	m	e	a	a	a	a	11.371
3/4/2013	m	e	a	a	a	a	19.915
3/5/2013	m	e		a	a	a	12.0865
3/6/2013	m	e	m	a	a	a	10.007
3/7/2013	m	e	m	a	a	a	12.7525
3/8/2013	m	e	m	a	a	a	15.79
3/9/2013	m	e	m	a	a	a	17.53
3/10/2013	m	e	m	a	a	a	12.34
3/11/2013	m	e	m	a	a	a	10.264
3/12/2013	m	e	m	a	a	a	13.0305
3/13/2013	m	e	m	a	a	a	14.6485
3/14/2013	m	e	m	a	a	a	13.6325
3/15/2013	m	e	m	a	a	a	17.68
3/16/2013	m	e	m	a	a		21.2
3/17/2013	m	e	m	a	a		23.285
3/18/2013	m	e	m	a	a	m	25.18
3/19/2013	m		m	a	a	m	19.135
3/20/2013	m	m	m	a	a	m	15.755
3/21/2013	m	m	m	a	a	m	15.89
3/22/2013	m	m	m	a	a	m	22.195
3/23/2013	m	m	m	a	a	m	19.43
3/24/2013	m	m	m	a	a	m	10.7195

	3/25/2013	m	m	m	a	a	m	9.274
	3/26/2013	m	m	m	a	a	m	8.567
	3/27/2013	m	m	m	a	a	m	9.6955
	3/28/2013	m	m	m	a	a	m	17.38
	3/29/2013	m	m	m	a	a	m	19.76
	3/30/2013	m	m	m	a	a	m	22.975
	3/31/2013	m	m	m	a	a	m	22.01
	4/1/2013	m	m	m	a	a	m	22.32
	4/2/2013	m	m	m	a	a	m	18.455
	4/3/2013	m	m	m	a	a	m	10.72
	4/4/2013	m	m	m	a	a	m	12.555
	4/5/2013	m	m	m	a	a	m	12.816
	4/6/2013	m	m	m	a	a	m	18.395
	4/7/2013	m	m	m	a	a	m	22.485
	4/8/2013	m	m	m	a	a	m	21.055
	4/9/2013	m	m	m	a	a	m	25.75
	4/10/2013	m	m	m	a	a	m	14.602
	4/11/2013	m	m	m			m	13.3985
	4/12/2013	m	m	m	m	m	m	16.369
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D08-2013	2/4/2013	e	e	e	e	e	e	16.435
	2/5/2013	e	e	e	e	e	e	16.975
	2/6/2013	e	e	e	e	e	e	17.84
	2/7/2013	e	e	e	e	e	e	20.225
	2/8/2013	e	e	e	e	e	e	14.085
	2/9/2013	e	e	e	e	e	e	13.655
	2/10/2013	e	e	e	e	e	e	14.64
	2/11/2013	e	e	e	e	e	e	10.655
	2/12/2013	e	e	e	e	e	e	15.19
	2/13/2013	e	e	e	e	e	e	9.227
	2/14/2013	e	e	e	e	e	e	10.075
	2/15/2013	e	e	e	e	e	e	10.2215
	2/16/2013	e	e	e	e	e	e	8.4815
	2/17/2013	e	e	e	e	e	e	11.0345
	2/18/2013	e	e	e	e	e	e	19.865
	2/19/2013	a	a	a	e	e	e	12.615
	2/20/2013	a	a	a	e	e	e	14.645
	2/21/2013	a	a	a	e	e	e	16.845
	2/22/2013	a	a	a	e	e	e	11.3985

2/23/2013	a	a	a	e	e	e	13.9075
2/24/2013	a	a	a	e	e	e	11.4605
2/25/2013	a	a	a	e	e	e	12.945
2/26/2013	a	a	a	e	e	e	12.109
2/27/2013		a	a			e	11.056
2/28/2013	m	a	a	a	a	e	8.7525
3/1/2013	m	a	a	a	a	e	9.389
3/2/2013	m	a	a	a	a	e	9.54
3/3/2013	m	a	a	a	a	e	11.371
3/4/2013	m	a	a	a	a	e	19.915
3/5/2013	m		a	a	a	e	12.0865
3/6/2013	m	m	a	a	a	e	10.007
3/7/2013	m	m	a	a	a		12.7525
3/8/2013	m	m	a	a	a	a	15.79
3/9/2013	m	m	a	a	a	a	17.53
3/10/2013	m	m	a	a	a	a	12.34
3/11/2013	m	m	a	a	a	a	10.264
3/12/2013	m	m	a	a	a	a	13.0305
3/13/2013	m	m	a	a	a	a	14.6485
3/14/2013	m	m	a	a	a	a	13.6325
3/15/2013	m	m	a	a	a	a	17.68
3/16/2013	m	m	a	a	a	a	21.2
3/17/2013	m	m	a	a	a	a	23.285
3/18/2013	m	m	a	a	a	a	25.18
3/19/2013	m	m	a	a	a	a	19.135
3/20/2013	m	m	a	a	a	a	15.755
3/21/2013	m	m	a	a	a	a	15.89
3/22/2013	m	m	a	a	a	a	22.195
3/23/2013	m	m	a	a	a	a	19.43
3/24/2013	m	m	a	a	a	a	10.7195
3/25/2013	m	m	a	a	a	a	9.274
3/26/2013	m	m	a	a	a	a	8.567
3/27/2013	m	m	a	a	a	a	9.6955
3/28/2013	m	m	a	a	a	a	17.38
3/29/2013	m	m	a	a	a	a	19.76
3/30/2013	m	m	a	a	a	a	22.975
3/31/2013	m	m	a	a	a	a	22.01
4/1/2013	m	m	a	a	a	a	22.32
4/2/2013	m	m	a	a	a	a	18.455
4/3/2013	m	m	a	a	a	a	10.72
4/4/2013	m	m	a	a	a	a	12.555

	4/5/2013	m	m	a	a	a	a	12.816
	4/6/2013	m	m		a	a	a	18.395
	4/7/2013	m	m		a	a	a	22.485
	4/8/2013	m	m	m	a	a	a	21.055
	4/9/2013	m	m	m		a	a	25.75
	4/10/2013	m	m	m	m	a	a	14.602
	4/11/2013	m	m	m	m	a	a	13.3985
	4/12/2013	m	m	m	m	a	a	16.369
	4/13/2013	m	m	m	m	a	a	15.98
	4/14/2013	m	m	m	m	a	a	22.4
	4/15/2013	m	m	m	m	a	a	26.135
	4/16/2013	m	m	m	m		a	24.005
	4/17/2013	m	m	m	m	m	a	24.815
	4/18/2013	m	m	m	m	m	a	16.425
	4/19/2013	m	m	m	m	m	a	12.953
	4/20/2013	m	m	m	m	m	a	12.338
	4/21/2013	m	m	m	m	m	a	19.045
	4/22/2013	m	m	m	m	m	a	21.98
	4/23/2013	m	m	m	m	m	a	18.02
	4/24/2013	m	m	m	m	m	a	12.105
	4/25/2013	m	m	m	m	m	a	16.18
	4/26/2013	m	m	m	m	m	a	19.345
	4/27/2013	m	m	m	m	m	a	23.21
	4/28/2013	m	m	m	m	m	a	22.89
	4/29/2013	m	m	m	m	m	a	22.87
	4/30/2013	m	m	m	m	m	a	23.495
	5/1/2013	m	m	m	m	m	a	25.35
	5/2/2013	m	m	m	m	m	a	14.95
	5/3/2013	m	m	m	m	m	a	14.311
	5/4/2013	m	m	m	m	m	a	17.344
	5/5/2013	m	m	m	m	m	a	19.34
	5/6/2013	m	m	m	m	m	a	16.0835
	5/7/2013	m	m	m	m	m	a	19.91
	5/8/2013	m	m	m	m	m	a	23.05
	5/9/2013	m	m	m	m	m		20.97
	5/10/2013	m	m	m	m	m	m	22.86
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D11-2013	2/13/2013	f	f	f	f	f	f	9.227
	2/14/2013	f	f	f	f	f	f	10.075

2/15/2013	f	f	f	f	f	f	10.2215
2/16/2013	f	f	f	f	f	f	8.4815
2/17/2013	f	f	f	f	f	f	11.0345
2/18/2013	f	f	f	f	f	f	19.865
2/19/2013	f	f	f	f	f	f	12.615
2/20/2013		f	f	f	f	f	14.645
2/21/2013	e	f	f	f	f	f	16.845
2/22/2013	e	e	e	e	e	e	11.3985
2/23/2013	e	e	e	e	e	e	13.9075
2/24/2013	e	e	e	e	e	e	11.4605
2/25/2013	e	e	e	e	e	e	12.945
2/26/2013	e	e	e	e	e	e	12.109
2/27/2013	e	e	e	e	e	e	11.056
2/28/2013	e	e	e	e	e	e	8.7525
3/1/2013	e	e	e	e	e	e	9.389
3/2/2013	e	e	e	e	e	e	9.54
3/3/2013	e	e	e	e	e	e	11.371
3/4/2013	e	e	e	e	e	e	19.915
3/5/2013	e	e	e	e	e	e	12.0865
3/6/2013	e	e	e	e	e	e	10.007
3/7/2013	e	e	e	e	e	e	12.7525
3/8/2013	e	e	e	e	e	e	15.79
3/9/2013	e	e	e	e	e	e	17.53
3/10/2013	e	e	e	e	e	e	12.34
3/11/2013	e	e	e	e	e	e	10.264
3/12/2013	e	e	e	e	e	e	13.0305
3/13/2013	a	e	e	e	e	e	14.6485
3/14/2013	a	a	a	e	e	e	13.6325
3/15/2013	a	a	a	e	e	e	17.68
3/16/2013	a	a	a	e	e	e	21.2
3/17/2013	a	a	a	e	e	e	23.285
3/18/2013	a	a	a	e	e	e	25.18
3/19/2013	a	a	a	e	e	e	19.135
3/20/2013	a	a	a	e	e	e	15.755
3/21/2013	a	a	a	a	a	a	15.89
3/22/2013	a	a	a	a	a	a	22.195
3/23/2013	a	a	a	a	a	a	19.43
3/24/2013	a	a	a	a	a	a	10.7195
3/25/2013	a	a	a	a	a	a	9.274
3/26/2013	a	a	a	a	a	a	8.567
3/27/2013	a	a		a	a	a	9.6955

3/28/2013	a	a	m	a	a	a	17.38
3/29/2013	a	m	m	a	a	a	19.76
3/30/2013	a	m	m	a	a	a	22.975
3/31/2013	a	m	m	a	a	a	22.01
4/1/2013	a	m	m	a	a	a	22.32
4/2/2013	a	m	m	a	a	a	18.455
4/3/2013		m	m	a	a	a	10.72
4/4/2013	m	m	m	a	a	a	12.555
4/5/2013	m	m	m	a	a	a	12.816
4/6/2013	m	m	m	a	a	a	18.395
4/7/2013	m	m	m	a	a	a	22.485
4/8/2013	m	m	m	a	a	a	21.055
4/9/2013	m	m	m	a	a	a	25.75
4/10/2013	m	m	m	a	a	a	14.602
4/11/2013	m	m	m	a	a	a	13.3985
4/12/2013	m	m	m	a	a	a	16.369
4/13/2013	m	m	m	a	a	a	15.98
4/14/2013	m	m	m	a	a	a	22.4
4/15/2013	m	m	m	a	a	a	26.135
4/16/2013	m	m	m	a	a	a	24.005
4/17/2013	m	m	m			a	24.815
4/18/2013	m	m	m			a	16.425
4/19/2013	m	m	m	m	m	a	12.953
4/20/2013	m	m	m	m	m	a	12.338
4/21/2013	m	m	m	m	m	a	19.045
4/22/2013	m	m	m	m	m	a	21.98
4/23/2013	m	m	m	m	m	a	18.02
4/24/2013	m	m	m	m	m	a	12.105
4/25/2013	m	m	m	m	m	a	16.18
4/26/2013	m	m	m	m	m	a	19.345
4/27/2013	m	m	m	m	m	a	23.21
4/28/2013	m	m	m	m	m	a	22.89
4/29/2013	m	m	m	m	m	a	22.87
4/30/2013	m	m	m	m	m	a	23.495
5/1/2013	m	m	m	m	m	a	25.35
5/2/2013	m	m	m	m	m	a	14.95
5/3/2013	m	m	m	m	m	a	14.311
5/4/2013	m	m	m	m	m	a	17.344
5/5/2013	m	m	m	m	m	a	19.34
5/6/2013	m	m	m	m	m	a	16.0835
5/7/2013	m	m	m	m	m	a	19.91

	5/8/2013	m	m	m	m	m	a	23.05
	5/9/2013	m	m	m	m	m	a	20.97
	5/10/2013	m	m	m	m	m	a	22.86
	5/11/2013	m	m	m	m	m	a	22.04
	5/12/2013	m	m	m	m	m	a	20.79
	5/13/2013	m	m	m	m	m	a	20.61
	5/14/2013	m	m	m	m	m	a	21.645
	5/15/2013	m	m	m	m	m	a	25.465
	5/16/2013	m	m	m	m	m	a	28.195
	5/17/2013	m	m	m	m	m	a	29.66
	5/18/2013	m	m	m	m	m	a	28.965
	5/19/2013	m	m	m	m	m	a	28.54
	5/20/2013	m	m	m	m	m	a	28.665
	5/21/2013	m	m	m	m	m	a	27.375
	5/22/2013	m	m	m	m	m	a	24.7
	5/23/2013	m	m	m	m	m	a	28.185
	5/24/2013	m	m	m	m	m		23.03
	5/25/2013	m	m	m	m	m		22.995
	5/26/2013	m	m	m	m	m		23.875
	5/27/2013	m	m	m	m	m	m	26.19
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D14-2013	2/21/2013	f	f	f	f	f	f	16.845
	2/22/2013	f	f	f	f	f	f	11.3985
	2/23/2013		f	f	f	f	f	13.9075
	2/24/2013		f	f	f	f	f	11.4605
	2/25/2013	e	f	f	f	f	f	12.945
	2/26/2013	e	f	f	f	f	f	12.109
	2/27/2013	e	f	f	f	f	f	11.056
	2/28/2013	e	f	f	f	f	e	8.7525
	3/1/2013	e	f	f	f	f	e	9.389
	3/2/2013	e	f	f	f	f	e	9.54
	3/3/2013	e	f	f	f	f	e	11.371
	3/4/2013	e	f	f	f	f	e	19.915
	3/5/2013	e	f	f	f	f	e	12.0865
	3/6/2013	e	e	e	f	f	e	10.007
	3/7/2013	e	e	e	e	e	e	12.7525
	3/8/2013	e	e	e	e	e	e	15.79
	3/9/2013	e	e	e	e	e	e	17.53
	3/10/2013	e	e	e	e	e	e	12.34

3/11/2013	e	e	e	e	e	e	10.264
3/12/2013	e	e	e	e	e	e	13.0305
3/13/2013	e	e	e	e	e	e	14.6485
3/14/2013	e	e	e	e	e	e	13.6325
3/15/2013	e	e	e	e	e	e	17.68
3/16/2013	e	e	e	e	e	e	21.2
3/17/2013	e	e	e	e	e	e	23.285
3/18/2013	e	e	e	e	e	e	25.18
3/19/2013	e	e	e	e	e	e	19.135
3/20/2013	a	e	e	e	e	e	15.755
3/21/2013	a	e	e	e	e	e	15.89
3/22/2013	a	e	e	e	e	e	22.195
3/23/2013	a		e	e	e	e	19.43
3/24/2013	a		e	e	e	e	10.7195
3/25/2013	a	a	e	e	e	e	9.274
3/26/2013	a	a	e	e	e	e	8.567
3/27/2013	a	a	e	e	e	e	9.6955
3/28/2013	a	a	e	e	e	e	17.38
3/29/2013	a	a	e	e	e	e	19.76
3/30/2013	a	a	e	e	e	e	22.975
3/31/2013	a	a	e	e	e	e	22.01
4/1/2013	a	a	e	e	e	e	22.32
4/2/2013	a	a	e	e	e	e	18.455
4/3/2013	a	a	e	e	e	e	10.72
4/4/2013	a	a	e	e	e	e	12.555
4/5/2013	a	m	e	e	e	e	12.816
4/6/2013	a	m	e	e	e		18.395
4/7/2013	a	m	e	e	e		22.485
4/8/2013	a	m	e	e	e	m	21.055
4/9/2013	m	m	m	e	e	m	25.75
4/10/2013	m	m	m	e	e	m	14.602
4/11/2013	m	m	m	e	e	m	13.3985
4/12/2013	m	m	m	m	e	m	16.369
4/13/2013	m	m	m	m	e	m	15.98
4/14/2013	m	m	m	m	e	m	22.4
4/15/2013	m	m	m	m	e	m	26.135
4/16/2013	m	m	m	m	e	m	24.005
4/17/2013	m	m	m	m	e	m	24.815
4/18/2013	m	m	m	m	e	m	16.425
4/19/2013	m	m	m	m	e	m	12.953
4/20/2013	m	m	m	m	e	m	12.338

	4/21/2013	m	m	m	m	e	m	19.045
	4/22/2013	m	m	m	m	m	m	21.98
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D17-2013	4/5/2013	f	f	f	f	f	f	12.816
	4/6/2013				f	f		18.395
	4/7/2013				f	f		22.485
	4/8/2013	e	e	e	f	f	e	21.055
	4/9/2013	e	e	e	f	f	e	25.75
	4/10/2013	e	e	e	f	f	e	14.602
	4/11/2013	e	e	e	e	e	e	13.3985
	4/12/2013	e	e	e	e	e	e	16.369
	4/13/2013	e	e	e	e	e	e	15.98
	4/14/2013	e	e	e	e	e	e	22.4
	4/15/2013	e	e	e	e	e	e	26.135
	4/16/2013	e	e	e	e	e	e	24.005
	4/17/2013	a	a	a	e	e	e	24.815
	4/18/2013	a	a	a				16.425
	4/19/2013	a	a	a	a	a	a	12.953
	4/20/2013		a	a	a	a	a	12.338
	4/21/2013		a	a	a	a	a	19.045
	4/22/2013	m	a	a	a	a	a	21.98
	4/23/2013	m	a	a	a	a	a	18.02
	4/24/2013	m	m	m	m	m	a	12.105
	4/25/2013	m	m	m	m	m	a	16.18
	4/26/2013	m	m	m	m	m	a	19.345
	4/27/2013	m	m	m	m	m		23.21
	4/28/2013	m	m	m	m	m		22.89
	4/29/2013	m	m	m	m	m	m	22.87
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D18-2013	3/29/2013	e	e	e	f	f	f	19.76
	3/30/2013	e	e	e	f	f	f	22.975
	3/31/2013	e	e	e	f	f	f	22.01
	4/1/2013	e	e	e	f	f	f	22.32
	4/2/2013	e	e	e			f	18.455
	4/3/2013	e	e	e			f	10.72
	4/4/2013	e	e	e	e	e	f	12.555
	4/5/2013	e	e	e	e	e	e	12.816

	4/6/2013	e	e	e	e	e	e	18.395
	4/7/2013	e	e	e	e	e	e	22.485
	4/8/2013	e	e	e	e	e	e	21.055
	4/9/2013	e	e	a	e	e	e	25.75
	4/10/2013	a	e	a	e	e	e	14.602
	4/11/2013	a	a	a	e	e	e	13.3985
	4/12/2013	a	a	a	e	e	e	16.369
	4/13/2013	a	a	a			e	15.98
	4/14/2013	a	a	a			e	22.4
	4/15/2013	a	a	a	a	a	e	26.135
	4/16/2013	m	a	a	a	a	a	24.005
	4/17/2013	m	m	m	a	a	a	24.815
	4/18/2013	m	m	m	a	a	a	16.425
	4/19/2013	m	m	m	a	a	a	12.953
	4/20/2013	m	m	m	a	a	a	12.338
	4/21/2013	m	m	m	a	a	a	19.045
	4/22/2013	m	m	m	a	a	a	21.98
	4/23/2013	m	m	m	a	a	a	18.02
	4/24/2013	m	m	m	a	a	a	12.105
	4/25/2013	m	m	m	a	a	a	16.18
	4/26/2013	m	m	m	a	a	a	19.345
	4/27/2013	m	m	m				23.21
	4/28/2013	m	m	m				22.89
	4/29/2013	m	m	m	m	m	m	22.87
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D20-2013	4/22/2013	e	f	f	f	f	f	21.98
	4/23/2013	e	e	e	e	e	e	18.02
	4/24/2013	e	e	e	e	e	e	12.105
	4/25/2013	e	e	e	e	e	e	16.18
	4/26/2013	a	e	e	e	e	e	19.345
	4/27/2013	a						23.21
	4/28/2013	a						22.89
	4/29/2013	a	a	a	a	a	a	22.87
	4/30/2013	a	a	a	a	a	a	23.495
	5/1/2013	a	a	a	a	a	a	25.35
	5/2/2013	a	a	a	a	a	a	14.95
	5/3/2013	m	m	m	a	a	a	14.311
	5/4/2013	m	m	m				17.344
	5/5/2013	m	m	m				19.34

	5/6/2013	m	m	m	m	m	m	16.0835
Donation #	Date	Head	R Arm	L arm	R Leg	L leg	Torso	ADD (C°)
D24-2013	5/7/2013	e	f	f	f	f	f	19.91
	5/8/2013	e	e	e	f	f	f	23.05
	5/9/2013	e	e	e	e	e	e	20.97
	5/10/2013	e	e	e	e	e	e	22.86
	5/11/2013				e	e	e	22.04
	5/12/2013				e	e	e	20.79
	5/13/2013	a	a	a	e	e	e	20.61
	5/14/2013	a	a	a	e	e	e	21.645
	5/15/2013	a	a	a	e	e	e	25.465
	5/16/2013	a	a	a	a	a	a	28.195
	5/17/2013	m	m	m	a	a	a	29.66
	5/18/2013	m	m	m	a	a	a	28.965
	5/19/2013	m	m	m	a	a	a	28.54
	5/20/2013	m	m	m	a	a	a	28.665
	5/21/2013	m	m	m	a	a	a	27.375
	5/22/2013	m	m	m	a	a	a	24.7
	5/23/2013	m	m	m	m	m	a	28.185
	5/24/2013	m	m	m	m	m	a	23.03
	5/25/2013	m	m	m	m	m	a	22.995
	5/26/2013	m	m	m	m	m	a	23.875
	5/27/2013	m	m	m	m	m	a	26.19
	5/28/2013	m	m	m	m	m		27.235
	5/29/2013	m	m	m	m	m		26.36
	5/30/2013	m	m	m	m	m		28.135
	5/31/2013	m	m	m	m	m	m	28.62

APPENDIX C: ADD UNTIL SKELETONIZATION OR MUMMIFICATION

The following table provides the values for the ADD of all body regions from placement until skeletonization or mummification for each individual used in this study.

	Head	R arm	L arm	R leg	L leg	Torso	Mean ADD
D14-2010	310.8	205.2	310.8	504.7	504.7	504.7	390.1
D03-2011	568.7	970.2	694.6	568.7	568.7	970.2	723.5
D04-2011	223.4	223.4	223.4	328.7	328.7	328.7	276.1
D11-2011	250.9	153.9	250.9	250.9	250.9	283.4	240.1
D12-2011	263.2	263.2	263.2	326.7	326.7	407.3	308.4
D19-2011	433.9	636.4	446.7	791.2	791.2	959.8	676.5
D21-2011	733.6	1363.0	1874.6	1858.4	1858.4	2133.8	1637.0
D23-2011	599.5	440.2	408.5	550.3	550.3	599.5	524.7
D02-2012	384.4	394.5	394.5	756.9	756.9	756.9	574.0
D03-2012	404.9	447.9	447.9	442.1	442.1	447.9	438.8
D04-2012	742.8	781.1	846.6	846.6	846.6	846.6	818.4
D08-2012	285.7	275.1	275.1	275.1	275.1	357.1	290.5
D11-2012	406.4	469.3	448.3	574.3	574.3	764.1	539.4
D12-2012	231.3	231.3	231.3	231.3	231.3	231.3	231.3
D14-2012	207.8	189.5	270.3	207.8	207.8	335.9	236.5
D15-2012	257.6	308.5	308.5	345.0	345.0	417.4	330.3
D16-2012	406.4	627.6	600.8	627.6	600.8	1238.5	683.6
D23-2012	269.1	385.0	236.5	300.1	300.1	416.1	317.8
D24-2012	245.2	245.2	245.2	245.2	245.2	300.6	254.4
D30-2012	636.9	356.6	187.7	356.6	231.7	899.2	444.8
D04-2013	398.8	853.3	630.4	1242.4	1242.4	795.3	860.4
D08-2013	320.1	390.6	912.0	989.5	1102.2	1540.7	875.8
D11-2013	723.2	612.3	590.1	999.3	999.3	1803.7	954.7
D14-2013	719.7	645.0	719.7	773.5	963.9	676.2	749.6
D17-2013	299.9	359.0	359.0	359.0	359.0	429.8	360.9
D18-2013	338.2	362.2	362.2	558.6	558.6	558.6	456.4
D20-2013	220.4	220.4	220.4	252.1	252.1	252.1	236.2
D23-2013	16.1	36.0	36.0	59.0	59.0	59.0	44.2
D24-2013	225.5	225.5	225.5	393.4	393.4	517.7	330.2
D27-2013	183.41	226.5	392.6	392.6	291.1	392.64	221.29
D28-2013	285.37	285.4	255	346.2	346.2	371.82	313.14
D30-2013	201	201	261.9	201	201	261.87	315.006667

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