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# INCORPORATING THE SKELETAL REMAINS OF TWO GERMAN LUTHERAN CEMETERIES INTO THE SURROUNDING IMMIGRANT POPULATION OF MEQUON, WISCONSIN

by

Jacquelyn Irene Bluma

A Thesis Submitted in

Partial Fulfillment of the

Requirements for the Degree of

Master of Science

in Anthropology

at

The University of Wisconsin-Milwaukee

May 2015

#### **ABSTRACT**

# INCORPORATING THE SKELETAL REMAINS OF TWO GERMAN LUTHERAN CEMETERIES INTO THE SURROUNDING IMMIGRANT POPULATION OF MEQUON, WISCONSIN

by

## Jacquelyn Irene Bluma

The University of Wisconsin-Milwaukee, 2015 Under the Supervision of Dr. Patricia Richards

The skeletal remains of 24 individuals were disinterred from the Altenburg Lutheran Church Society Cemetery and the German Evangelical Lutheran Cemetery (Stolz Site) in 1987 and 1989, respectively. Both unmarked cemeteries were located in Mequon, Wisconsin. The majority of these individuals were interred during the mid-nineteenth century, a time when German populations were becoming established as a major cultural and ethnic force within the region. Although these cemeteries have undergone multiple analyses, they have not been incorporated into larger discussions of settlement and mortuary practices in the area. By characterizing German immigrant settlement and mortuary practices, it is possible to incorporate the Altenburg and Stolz cemeteries into this larger framework.

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This thesis is dedicated to my niece, Reyna J. Barske. Follow your dreams and I will support you along the way. I promise.

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# **Chapter I. Introduction**

Anchored by skeletal data collected from two disinterred and unmarked German Lutheran cemeteries from Mequon, Wisconsin, this research focuses on early German settlement and burial practices in southeastern Wisconsin and includes demographic, spatial, and osteological analyses. These two cemeteries, the Altenburg Lutheran Church Society Cemetery and the German Evangelical Lutheran Cemetery, date between 1839 and 1910, a time when the earliest German immigrants began to populate southeastern Wisconsin (Meer 1990; Rusch 1989). "German" is a designation that can be applied to three dozen loosely allied states in Europe during the mid-nineteenth century (Conzen 1972).

The Altenburg Lutheran Church Society Cemetery (also known as the Altenburg Cemetery) was located along State Highway 181 in Mequon, Wisconsin. Due to a Wisconsin Department of Transportation road widening project in 1987, 12 burials containing nine adults and five subadults were archaeologically excavated from the Altenburg Cemetery by the Wisconsin Historical Society (Rusch 1989).

The German Evangelical Lutheran Cemetery (also known as the Stolz Cemetery site) was located 5 km from the Altenburg Cemetery on what is today LeMont Boulevard in Mequon, Wisconsin. In late 1988, the construction of a home addition disturbed human remains and the Wisconsin Historical Society excavated five adults and five subadults from the property, owned by the Stolz family (Meer 1990).

Subsequently, the Wisconsin Historical Society conducted historical and osteological analyses on these two cemeteries in the years following the excavations. In 1988, Susan J. Wade prepared the *Osteological Analysis of Nineteenth Century German-*

American Burials from the Altenburg Cemetery, Ozaukee County, Wisconsin. In this report, Wade provides the age, sex, ethnic affiliation, stature, and pathologies of each individual. The age range is from seven fetal lunar months to more than 45 years (Wade 1988). Trauma to one individual was described and several pathologies were noted on multiple individuals (Wade 1988). Soon after, in 1989, Dr. Diane Young Holliday completed an osteological inventory and analysis of the Altenburg Cemetery. The inventory describes the complete or fragmented nature for each bone of every individual. Holliday also identified the age, sex, and ethnic affiliation of each individual.

Lynn A. Rusch's 1989 site report *Archaeological and Historical Analysis of Some*Nineteenth Century German-American Burials from the Altenburg Cemetery, Ozaukee

County, Wisconsin discusses field methods, archaeological analysis, and historical research conducted on the Altenburg Cemetery. Each burial casket was described in detail along with any grave furniture found. The burials were roughly dated using information about machine-cut square nails and the availability of the white pine used in casket construction. Based on the square nails and the white pine used in casket construction, Rusch determined the Altenburg Cemetery dated from 1839 to 1910.

In 2004, Meghan Cotter completed the osteological report *Analysis of Human Skeletal Remains from the Altenburg Cemetery*. Cotter's report revisits the sex, age, ethnic affiliation, pathologies, traumas, and stature of the individuals from the Altenburg Cemetery. She observed several pathologies in addition to those already identified by Wade and Holliday. She also detailed the Strontium isotope analysis conducted in 1998 by R. Alexander Bentley and Dr. James Burton at the University of Wisconsin - Madison. Strontium isotope analysis was conducted on burials 4, 6, 7, 8, 9, and 12 of the Altenburg

Cemetery. Individuals 4, 6, 7, 8, and 9 were found to be born locally and lived locally during the last ten years of their lives. The analysis also revealed that the individual from burial 12 was born in the central area of Saxony.

One report was completed on the Stolz Cemetery. In 1990, Rosanne M. Meer prepared the *Report of Investigation of Skeletal Remains Recovered from the Stolz Site* (BOZ0048/198807), Ozaukee County, Wisconsin. She described the methods used in the field as well as each burial casket and grave furniture in detail. An osteological analysis was also conducted by Meer. She completed an inventory of the remains and identified each individual's sex, age, ethnic affiliation, pathologies, traumas, and stature. Using information on coffin construction, Meer estimated that the Stolz Cemetery was in use between 1830 and 1880. Strontium isotope analysis was conducted on Stolz Cemetery burials 1 and 4 in 1998 by R. Alexander Bentley and Dr. James Burton in conjunction with the Altenburg strontium isotope analysis (Cotter 2004). The analysis concluded that both individuals were born locally and lived locally during the last ten years of their lives (Cotter 2004).

In 2008, the skeletal remains from both cemeteries were transferred to the University of Wisconsin - Milwaukee (UWM) for final disposition. The remains were accessioned, stabilized, and conserved by UWM students Emily Laak, David Stock, and the author under the direction of the Dr. Robert Jeske, Project Director, and Alexis M. Jordan, Project Supervisor. Throughout this process, several professional papers, posters, and publications have been completed on the subject of the project, *Analysis of Immigrant EuroAmerican Cemeteries: Age, Sex, and Health in 19th-early 20th Century Southeastern Wisconsin*, including this thesis.

Emily Laak and David Stock, undergraduate students who assisted in this project, presented the poster *Secondary Analysis of Skeletal Remains from Altenburg Cemetery* at the 2012 University of Wisconsin (UW) System Symposium for Undergraduate Research at UW-Parkside. This poster highlighted the process of stabilizing the collection including the methods of conservation and inventory practices implemented for this project. Also in 2012, Stock presented the paper *Tertiary Analysis of Skeletal Remains from the Altenburg Cemetery* at the National Conference on Undergraduate Research at Weber State University. This paper expanded upon and provided further details on the topics of conservation and inventory of the cemetery remains.

All students who assisted in this project (Bluma, Jordan, Laak, and Stock) presented the poster A Twice Forgotten Cemetery: A New Analysis of the Human Remains from the Altenburg Cemetery at the 2012 Midwest Archaeological conference in East Lansing, Michigan. This poster introduced the preliminary assessment of the pathology and trauma witnessed in the Altenburg Cemetery skeletal collection. Also at this conference, Jordan presented A Discussion of the Altenburg Lutheran Church Society Cemetery in Relation to Other Southeastern Wisconsin German Cemeteries (co-authored by Bluma). This paper confirmed the inhabitants of the Altenburg Cemetery were likely German Lutheran immigrants and their descendants. It also offered a preliminary examination of the number and locations of immigrant cemeteries in Southeastern Wisconsin.

In 2013, Bluma, Jordan, Laak and Stock presented on the pathology and trauma observed in the Altenburg Cemetery. This poster added the assessment of pathology and trauma in the German Evangelical Lutheran Cemetery skeletal collection resulting in the

comparative analysis Fractured Pasts and Brittle Bones: Another Look at Two Midnineteenth Century German Cemeteries of Southeastern Wisconsin at the Society for
American Archaeology annual meeting in Honolulu, Hawaii. Also at this conference,
Bluma presented An In-depth Comparison of Immigrant Life Expectancies from German
Lutheran Cemeteries in Southeastern Wisconsin (co-authored by Jordan). This paper was
a preliminary demographic study of life expectancies within and between immigrant
populations in Southeastern Wisconsin.

Bluma also presented a paper with an expanded demographic study, *A Closer Look at Immigrant Life Expectancies from German Cemeteries in Southeastern Wisconsin*, at the 2015 Society for American Archaeology annual meeting in San Francisco, California. The results of this presentation are expanded upon in this thesis.

To further understand the lives of the German Lutheran immigrant population in Mequon, Wisconsin, including those interred in the Altenburg and Stolz cemeteries, the following questions will be explored:

- 1. Where did the early German immigrants settle and place their burials in Mequon, Wisconsin?
- 2. What types of cemeteries are common among German immigrants?
- 3. What were the life expectancies of the German immigrants from 1780 to 1910?
- 4. What were the biological characteristics of the inhabitants of the Altenburg and Stolz cemeteries?

By characterizing German Lutheran immigrant settlement and mortuary practices in Mequon, Wisconsin, it is possible to incorporate the Altenburg and Stolz cemeteries into this larger framework.

# **Chapter II. Theoretical Perspective**

The study of death and burial in archaeology has been addressed by many anthropologists, each of whom has provided a stepping stone of knowledge for researchers to follow. The theoretical framework explored for this paper builds on the work of Malinowski (1948), Evans-Pritchard (1948), Radcliffe-Brown (1964), Ucko (1969), Binford (1970), Saxe (1971), Tainter (1975), Randsborg (1980), Goldstein (1981), Chapman (1981), Carr (1995), Parker-Pearson (2000), and Mytum (2004). The topics of identity at death, funerary ritual, disposal of the dead, and placement of the dead are visited in this section.

During the first half of the twentieth century, anthropologists often used functionalist explanations of human behavior and societies. Functionalism established the superiority of the social whole over the individual parts (Parker-Pearson 2000). Funeral ritual, according to the functionalist view, supported social bonds among mourners and strengthened political authority when death produced strong emotion such as fear or fascination (Malinowski 1948; Evans-Pritchard 1948; Radcliffe-Brown 1964).

Following functionalist anthropology, processual archaeology (or new archaeology) developed, with its law-like theories of human social dynamics, including mortuary behavior (Parker-Pearson 2000). Archaeologists began analyzing ethnographic studies to explore cross-cultural similarities and generalizations (Parker-Pearson 2000).

A correlation between the number of people with relationships to a deceased individual and the social rank of the deceased was evaluated in Lewis Binford's study of forty ethnographically documented societies published in 1971. According to Binford, the deceased's funerary ritual should have a direct relationship to their social rank. The ritual

should vary between the types of social groups studied. The more complex the society, he concluded, the more complex the funeral ritual.

Around this same time, Arthur Saxe's 1970 dissertation described eight hypotheses on the social dimensions of mortuary practices. Hypothesis number four, notably associated with Binford's studies, stated that the greater an individual's social rank, the more their most significant identities are represented at death, at the expense of their lesser identities. Hypothesis number seven also correlates with Binford's studies, suggesting that there is less funerary variation in simpler societies. Also of note, Saxe's hypothesis number eight suggests that formal disposal areas for the exclusive use of burying the dead are maintained by corporate groups with the intent of legitimizing their rights over resources through descent of their ancestors.

In 1981, Lynne Goldstein established further support for Saxe's hypothesis number eight. After reviewing thirty ethnographic studies of mortuary ritual, Goldstein confirmed that the maintenance of a formal, permanent disposal area of the dead may have been a means for a corporate group to legitimize its rights for scarce resources. Robert Chapman added to Saxe and Godstein's concepts by assessing Neolithic burials in western Europe. In 1981, Chapman's evaluation supported the notion that during periods of inequity between societies and critical resources interment in cemeteries or monuments emerged. A change in social order was witnessed by the construction of formal disposal areas, used to establish a claim to the land and resources through the presence of their ancestors, according to Chapman.

Peter Ucko introduced the notion that the belief in an afterlife cannot be assumed based on the presence of funerary ritual. In this 1969 ethnographic based study, he also

established the fact that a change in ritual does not necessarily correlate with a change in beliefs. There is no predictable direct relationship between the quantity of grave goods and the deceased's social status, according to Ucko. He suggests the grave goods are a product of social or ritual practices.

In 1975, Joseph Tainter introduced the idea of energy expenditure in funerary practices. He found that there was greater expenditure of energy on mortuary rites for those with greater social rank than on those with lesser social rank. In 90 percent of his study of 103 societies, he found that social rank correlated with energy expenditure in mortuary practices. In 5 percent of his study, he found that social rank was visible through grave goods. This supports Ucko's claim that there is not always a direct relationship between social rank and grave goods. In 1980, Klavs Randsborg concluded that the communication of social status or succession could not be derived from a simple archaeological formula. Randsborg also advised to enter the study of social dimensions and treatment of the dead knowing the local tradition. Christopher Carr's 1995 study of 31 societies revealed that in 42 percent of cases grave goods were associated with vertical social position, i.e. social system hierarchy. He also found that it may not be the quantity of grave goods which correlated with social position, but the quality.

Post-processual archaeology reflects the most recent school of thought (Parker-Pearson 2000). The New Archaeology often saw rank and status in funerary practices, whereas post-processual archaeologists are more likely to see social roles being manipulated or denied at funerals (Parker-Pearson 2000). In 2000, Michael Parker-Pearson argued that the deceased may be misrepresented in death by the living. He describes material culture retrieved by archaeologists as the active manipulation of

people's allegiances, beliefs, and perceptions in funeral rites, not as the results of behavioral dynamics. Because the dead do not bury themselves, the material culture reveals more about the living than the deceased, according to Parker-Pearson (2000). Material culture is added to the burial by the living, but has a chance of aiding in the identity of the deceased. As the skeletal remains of an individual are less likely to be altered by the living, the remains reveal pathologies and trauma to further identify aspects of the deceased's life.

Every society encounters death and each responds in a different manner. In most instances, death is followed by funerary rites and disposal of the body. The body is separated from society. This paper evaluates cemeteries in southeastern Wisconsin during the historic period of 1780 to 1910. As described by Harold Mytum in 2004, rural farmstead burials were common in the United States during the historic period between the eighteenth and twentieth centuries. He also explains that during this time period, burial locations began expanding from the farmstead to include rural cemeteries; some associated with churches or whole communities. Rural burial grounds were generally small, but had land on which to expand (Mytum 2004).

As evidence of burials does not always survive on the landscape, and burials are abundant spatially and temporally, human burials are one of the most common cultural features observed by archaeologists (Binford 1971). Unmarked cemeteries are regularly encountered during construction projects. Dating excavated remains from unmarked cemeteries of the historic period can be challenging, for the majority of burials do not include items that can provide a close date (Mytum 2004). Evaluating coffin nail types can be valuable for dating the cemetery as a whole, but specific burials within the

cemetery are generally not able to be dated individually using nails alone (Mytum 2004). In some cases, identification of the individual and date is painted directly on the coffin or provided on a metal plate, but this type of identification does not usually survive to the time of excavation. Though many cemeteries eventually become unmarked, in some cases, deliberate planting of trees or other vegetation can still be witnessed today that may help to support a cemetery's presence.

Death does not always result in the burial of a corpse. The practice of cremation is carried out to reduce the human body to ash, completely destroying the bones. The remains from cremation may be buried or scattered upon the landscape. Cremation is an example of cultural taphonomy. Taphonomy, the physical and chemical process that modifies an organism after its death, literally means "study of burial processes" in Greek (Nawrocki 1995). Different forms of taphonomy are characterized by environmental, individual, and cultural factors. Environmental factors associated with taphonomy include carnivores, fungi, bacteria, insects, plants, soil pH, and water among others (Nawrocki 1995). Individual factors involve the human remains themselves; these include body size, body fats, and disease (Nawrocki 1995). Finally, cultural factors associated with taphonomy include cremation, burial, vaults, and coffins (Nawrocki 1995).

Whether containing cremated or inhumed remains, marked cemeteries are repositories of demographic data. Grave marker and burial records can be analyzed to determine the life expectancy for various birth years. In their seminal study of gravestones in Massachusetts, entitled *Death's Heads, Cherubs, and Willow Trees:*Experimenetal Archaeology in Colonial Cemeteries, Edwin Dethlefsen and James Deetz

present the range of analyses possible using grave markers, including a demographic study (1966).

Demographic data for a large date range can be translated into the life expectancy of a series of decades to make trends more clear. In addition to providing sex, ethnicity (based on surname), and mortality patterns, the 19<sup>th</sup> century Wisconsin grave markers may also yield information regarding marital status or other familial relationships (Foster 2003). Not all deaths resulted in burials and not all burials included a grave marker. Because of this, demographic analyses should be carried out in multiple contexts to reveal more accurate patterns (Mytum 2004). If available, burial registry data should be considered because the marked grave sample may not reflect the entire population (Mytum 2004).

Highland Park Skeletal and Demographic Study

Rosanna Higgins and Joyce Sirianni completed *An Assessment of Health and Mortality of Nineteenth Century Rochester, New York Using Historic Records and the Highland Park Skeletal Collection* in 1995. In 1984, skeletal remains were found during a Monroe County Parks Department project at Highland Park in New York State. As a result, the Rochester Museum and Science Center excavated 300 skeletons at the site. The cemetery was likely associated with a nearby facility which was originally an almshouse that operated from 1826 to 1865. After the almshouse closed, the poor were buried in the pauper section of the Mount Hope Cemetery. Higgins and Sirianni analyzed the remains of 65 subadults and 77 adult female skeletons from the Highland Park burials before comparing them to the demographic profile of the area using death records, including the Mount Hope Cemetery records.

Higgins and Siranni found in both the skeletal and death records that the largest amount of deaths in the subadult population were in the neonate and infant group. When examining the results of the analysis of the adult female sample, they found the highest death rate among the Highland Park skeletal collection was between 30-39 years and 60-69 years, while the area death records show the highest percentage of death occurring between 20 and 49 years. In addition, they evaluated the dental health of the skeletal population and cause of death as reflected in the death records.

The study concluded that subadult mortality was similar between the skeletal sample and the area death records with death declining after the first year of life in both groups. The adult female mortality rate was also similar in the skeletal sample and as reflected in the area death records. The skeletal analysis of the Highland Park individuals and comparison with area death records provides insight into the nineteenth century historic period of Rochester, New York with special consideration to those individuals often times overlooked in history, the poor.

The concept of analyzing skeletal remains and incorporating them into the greater population as exhibited in the work of Higgins and Siranni will be adopted by the author in the Altenburg and Stolz Cemeteries presented here, incorporating them into the greater population using cemetery data.

## **Chapter III. Methods**

Demography

To understand how the inhabitants of the Altenburg and Stolz cemeteries compare to the mortality trends of early immigrant populations in the Mequon area, all available grave marker inscriptions were obtained from 17 area cemeteries using available Mequon-Thiensville Historical Society and the Ozaukee County Historical Society records. Working closely with the archivist of the Mequon-Thiensville Historical Society has allowed for the conclusion that the 17 cemeteries include all known cemeteries in Mequon and Thiensville. This demographic study is a snapshot in time and does not reflect a living population. The study cemeteries can be viewed in Figure 1.

Each cemetery was visited by the author, save one, and a small sample of grave markers was verified against the documents from the Historical Society. Not included on the map below are two cemeteries, St. Cecelia's and St. Peter's cemeteries. The reasons for this will be addressed in the GIS analysis section. Of the 17 cemeteries, 10 were determined to contain the remains of persons of general non-specified European ancestry, while the remaining seven were determined to contain the remains of individuals with only German ancestry. The grave marker data were recorded by separating the information into groups based on age, sex, and location.

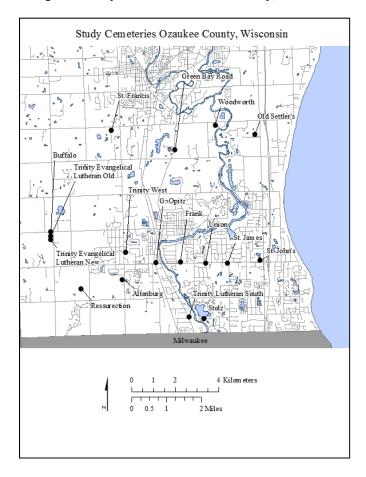


Figure 1: Study Cemeteries Ozaukee County, Wisconsin

Following Russell Barber's exercises on cemetery demography, age at death in the grave marker sample was calculated by subtracting the birth year from the death year and the sex of the individual was determined by first name gender designations consistent with this time period (Barber 1994). The birth months were not taken into account, as many grave markers did not record the month of death. An example can be viewed in Figure 2, below. When the grave marker data were combined, the life expectancy of a group was calculated by finding the average of the age at death for all persons born in the same year. The date ranges were set using the birth years of the cemetery inhabitants making the range of this study 1780 to 1910. The life expectancies of each birth decade were then compared to the life expectancies of the inhabitants, of the Altenburg and Stolz

cemeteries. As no gravestones were recovered at the Altenburg or Stolz cemeteries, the age and sex of these individuals were determined osteologically. This has implications for the comparability of these two data sets, which consist of actual calendar dates on the one hand and occasionally large age estimate ranges on the other. It is one of the reasons a statistical comparison was not carried out.

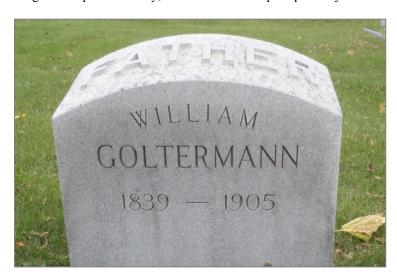


Figure 2: Opitz Cemetery, Grave Marker Sample - photo by author

Geographic Information Systems

Geographic information systems (GIS) refer to computer software packages geared toward the analysis and presentation of spatial and aspatial data (Price 2012). Using a map database obtained from the Ozaukee County Land Information Office, combined with the GIS mapping program ArcGIS, and the geographic locations of cemeteries included in the demography study, it was possible to conduct spatial analyses to determine the relationship between Mequon area cemeteries and settlements.

The geographic locations of the Altenburg and Stolz cemeteries were recorded in the manuscripts obtained from the Wisconsin Historical Society. In addition, the Wisconsin Historical Society and Mequon Historical Society provided geographic

information for 15 other cemeteries in Mequon and the surrounding area that corresponded with the date range of the Altenburg and Stolz cemeteries of 1839 to 1910. Two cemeteries could not be located geographically due to lack of sufficient information. Each cemetery and settlement was manually located in the Ozaukee County map database. The author physically visited all cemeteries included in the study to ensure the accuracy of the map database.

#### Osteology

In 2008, the skeletal and material remains recovered from the Altenburg and Stolz cemeteries were transferred from the Wisconsin Historical Society to the University of Wisconsin - Milwaukee. An updated analysis and re-housing was completed by the author between 2011 and 2014. The remains and grave goods arrived in paper or plastic bags inside cardboard boxes. To slow deterioration, all remains and grave goods were placed in acid-free bags within acid-free boxes. The bags and boxes were labeled according to the University of Wisconsin - Milwaukee Archaeology Lab's procedures. The labeling included the Wisconsin Historical Society's catalogue number, followed by the Archaeology Lab's catalogue number, as well as the name of the cemetery. In addition, the specific contents were listed along with an element and fragment count. The grave goods consisted of material culture such as clothing fasteners and jewelry, in addition to casket materials including casket hardware. Assessment of the grave goods is forthcoming in the Altenburg and Stolz Cemetery Project report and is not included in this thesis.

Methods of accurately determining the age and sex of human remains are constantly evolving. Because of this, the author analyzed the age and sex of each

individual in accordance with the most current procedures outlined for the UW-Milwaukee Archaeology Lab in the Osteological Analysis Manual.

The Osteological Analysis Manual synthesizes the methods of several osteologists. Sex estimation was completed both osteometrically and non-metrically. For osteometric estimation, the following measurements were recorded: the maximum length of the talus (Steele 1976), the vertical diameter of the humeral head (Stewart 1979), and the maximum diameter of the femoral head (Stewart 1979). Non-metric sex estimation was completed by calculating scores assigned to the pelvis and cranium. Scoring the pelvis included the ventral arc, subpubic concavity, ischiopubic ramus ridge (Phenice 1969), greater sciatic notch (Walker 2005), and preauricular sulcus (Buikstra and Ubelaker 1994). Scoring the non-metric traits of the skull included the nuchal crest, mastoid process, supraorbital margin, glabella, and mental eminence (Acsadi and Nemeskeri 1970). After completing the sex estimation, the age of the individual was evaluated non-metrically. The following were scored for age estimation: pubic symphysis (Suchey-Brooks in Brooks 1990 and Todd 1921), auricular surface (Osborne 2004), and cranial suture closure (Meindl and Lovejoy 1985). In both age and sex evaluations, if an element consisted of a left and right side, the left side's measurement or score was recorded.

The Osteological Analysis Manual also outlines the procedure for determining any pathologies and trauma that may be present. A complete inspection of the remains was completed by the author. Upon examination, pathologies and trauma were divided into the following categories: unidentified lesions, non-specific infection, neoplastic conditions, growth and developmental stress, joint pathology, and trauma. The author's

analysis of each individual's age, sex, pathology, and trauma was confirmed by Carrie Jones and Alexis Jordan, Certified Skeletal Analysts for the State of Wisconsin.

## **Chapter IV. Historical Context**

Prior to 1838, the land that would become Mequon was inhabited by the Sauk, Meskawaki (Fox), Potawatomi, and Memomonee Native American tribes. It was covered with forests of oak, maple, beech, and ash trees. There was a swampy area associated with the Memonomee River (now the Milwaukee River) which was home to tamarack and cedar trees. Trails created by the Native Americans were used by settlers to travel, as there were no wagon roads. Upon the settlers' arrival, land was only available for purchase on the east side of the river. The west side of the river was not open for land purchase until 1846 (Thurk 1990).

Between 1820 and 1910, about 5.5 million Germans immigrated to the United States from a wide variety of nations and provinces (Wyatt 1986). Many early German immigrants were adventurers (Kuyper 1980). From 1839 to 1846 primary reasons for immigration included agricultural reforms, expanding population, crop failures, and industrialization (Wyatt 1986). Around the same time, German Lutherans began their immigration in search of religious freedom.

King Frederick William III of Prussia announced the union of the Prussian Reformed Church and the Lutheran Church in 1817, upsetting many who belonged to the Lutheran Church (Kuyper 1980). After resisting the union for over 20 years, the Lutherans were granted permission to leave Prussia (Kuyper, 1980). Seeking religious freedom, Prussian Lutherans from four different German provinces, Pomerania, Brandenburg, Saxony, and Silesia, began emigrating to Australia in 1838 and America in 1839 (Boehlke 1989). By 1847, the German Lutherans who came to North America settled in Canada, New York, and Wisconsin (Boehlke 1989). Most who settled in

Wisconsin had an initial stop in New York (Boehlke 1989). After travelling to Wisconsin, some settled in Milwaukee, but most of that land was already purchased. Many travelled on to Mequon, 15 miles northwest of Milwaukee, where land was still available for \$1.25 an acre (Boehlke 1989). The Green Bay trail, a Native American trail, was the main route from Milwaukee to Mequon. It is thought that today's Green Bay Road follows nearly the same route as the trail (Corrigan 1950).

The first German Lutherans arrived in Mequon in 1839 (Corrigan 1950). They had little to no money and most were trained as craftsmen, tradesmen, or rural laborers before arriving in America (Conzen 1972). From 1839 to 1846, over three thousand Lutherans travelled to Wisconsin (Kuyper 1980). The majority of this number settled in Ozaukee, Washington, Dodge, and Milwaukee counties (Kuyper, 1980).

Immigrant stories of religious freedom and economic success made their way from Wisconsin back to the Old Country and when economic distress and political unrest took hold in Germanic Prussia, a second wave of Lutheran immigrants reached Wisconsin between 1854 and 1860 (Gurda 1999; Kuyper 1980). Many Germans in the second wave were political refugees, as a result of the 1848 revolution in Europe (Conzen 1972). They were trained similarly to the first wave, as craftsmen, tradesmen, or rural laborers, but there was also an increase of professionals and students (Conzen 1972) and the Forty-Eighters, as they were known, brought their progressive social politics with them. Many of these immigrants found jobs and homes in urban areas where they would have sought out like-minded earlier migrants. Milwaukee, for example, became known as the "German Athens" because of its numerous German language periodicals and institutions like the Engelmann School, Milwaukee Turners and the Milwaukee Public

Museum, all of which were founded by post-1848 German immigrants (Gurda 1999). Low land costs, general economic opportunities, a State Commission of Emigration, and the Wisconsin Central Railroad helped draw the immigrants to the Wisconsin region (Bungert 2006; Kuyper 1980). Germans were not the only immigrants attracted to the Mequon area, however; there were also English and Irish settlers among the earliest immigrants (Corrigan 1950).

In 1839, Andreas Geidel, a German Lutheran immigrant from Saxony, purchased 320 acres of land in present day Mequon. He arrived with Ed Jalpen, H. Haypen, John Thomson, Michael Mueller, Andrew Lanzendorf, W. Schumann, and Gottfried Baer all of whom settled in the community known as the Saxe-Altenburg settlement (Corrigan 1950). Geidel sold part of his land to the Altenburg Lutheran Church Society in 1852 (Rusch 1989). It is unclear which families used the Altenburg Cemetery originally, but a local source suggests that Geidel family members were buried there. In 1853, the Mequon Free Lutheran Congregation was incorporated and the Altenburg Lutheran Church Society was disbanded or subsumed (Wendt 1983 in Rusch 1989). Geidel's ownership of the land and the religious makeup of the regional population strongly suggest that the individuals interred at the Altenburg Cemetery were German Lutheran immigrants and their descendants. The estimated period of use for the Altenburg Cemetery is between 1839, when Geidel purchased the land, and 1910, based on a lack of material evidence that can be dated beyond this point and some physical circumstantial evidence related to casket construction (Rusch 1989).

Also in 1839, Joachim Dumstrey arrived in the United States, at the age of 47, from Pomerania (Boehlke 1989). Dumstrey and his family were early members of the

German Lutheran Freistadt settlement until he purchased property on the Milwaukee River in 1841 that would eventually become the Stolz Cemetery (Boehlke 1989; Meer 1990). Dumstrey then sold the land to Johann Schauss in 1859 (Meer 1990). An 1867 map shows The Evangelical Lutheran Church of the Town of Mequon located on the Schauss property. However, this church and cemetery were not included on later maps of the area (Meer 1990). It remains unclear how Schauss and the church are connected, as physical evidence of the church building has yet to be identified. The estimated period of use for the Stolz Cemetery was from 1841, when Joachim Dumstrey purchased the land, to 1895, based on a lack of material evidence from the cemetery that can be dated beyond this point and the lack of cartographic references after 1867 (Meer 1990).

## Chapter V. Analysis

Demography

All available grave marker inscriptions from 17 area cemeteries were obtained using available Mequon-Thiensville and Ozaukee County Historical Society records. The Mequon-Thiensville Historical Society retains paper copies of the grave marker inscriptions. These are handwritten documents compiled by Wisconsin State Old Cemetery Society members. The Ozaukee County Historical Society provided paper copies of early maps to assist in the location of the cemeteries.

Of the 17 cemeteries included in the study, 10 cemeteries were determined to contain the remains of individuals of general European ancestry while the remaining 7 specifically contained the remains of individuals of German ancestry. As the information yielded by this demographic analysis was intended as a baseline for comparison, the Altenburg and Stolz cemeteries were not included in the analysis. Further, having the population data of all 17 cemeteries as well as the clearly-defined subset of 7 specifically German cemeteries allows for a comparison of the Altenburg and Stolz cemeteries against trends in both the overall population and in the German community. The following summary describes the life expectancy findings resulting from the analysis.

The Mequon area cemeteries study provided cemetery data for 3,652 individuals. For the full population, adults and subadults, 1780 was the decade with the highest average life expectancy at 86.23 years (n=13), while 1870 was the decade with the lowest average life expectancy at 52.62 years (n=357) (Table 1). The subset of German cemeteries included 1334 individuals. Similar to the total population data, the decade with the highest average life expectancy within the German cemeteries was 1780 at 90.38 years (n=8) and the decade with the lowest average life expectancy was 1870 at 47.90

years (n=159) (Table 2). These figures indicate that persons from the German cemeteries had a lower life expectancy than the overall population in the 1870s. The figures also appear to indicate that persons buried in the German cemeteries had a greater life expectancy than the overall population in the 1780s; however, due to the small sample sizes for that decade, that cannot be conclusively determined. These data also suggests that the German population had a lower life expectancy overall than the population as a whole. Tables 1 and 2 below show the decades with the greatest average life expectancy highlighted green. Decades with the lowest life expectancy are highlighted orange.

Table 1: Life Expectancies of All Individuals by Decade

Table 2: Life Expectancies of Germans by Decade

Life Expectancies of All Individuals by Decade				Life Expectancies of Germans by Decade			
Decade	Decade Life Expectancy Persons			Decade	Life Expectancy	Persons	
1900	67.53	677		1900	63.85	178	
1890	63.81	533		1890	60.85	185	
1880	59.22	460		1880	56.65	211	
1870	52.62	357		1870	47.90	159	
1860	56.39	330		1860	57.11	122	
1850	58.82	309		1850	57.53	118	
1840	62.79	258		1840	59.78	97	
1830	67.63	193		1830	67.51	67	
1820	70.92	184		1820	72.14	74	
1810	71.93	179		1810	76.65	57	
1800	73.89	112		1800	73.42	31	
1790	76.15	47		1790	75.59	27	
1780	86.23	13		1780	90.38	8	
<b>Grand Total</b>	63.17	3652		<b>Grand Total</b>	60.73	1334	

The 284 subadults in this study were aged 10 years and younger. For the total subadult population, 1840 was the decade with the highest average life expectancy at 4.13 years (n=8), while 1900 was the decade with the lowest average life expectancy at 1.38 years (n=45) (Table 3). The decade with the highest average life expectancy for the subset of German subadult was 1840 at 3.5 years (n=4), whereas 1890 was the decade

with the lowest average life expectancy for the German subadults at 0.80 years (n=20) (Table 4). This data suggests that subadults from the German cemeteries had a lower life expectancy than the overall population in the 1890s and the decade with the highest life expectancy, 1840, was the same as the overall population. It also suggests that the German subadults had a lower life expectancy than the overall population throughout the duration of the study.

Table 3: Life Expectancies of All Subadults by Decade

Table 4: Life Expectancies of German Subadults by Decade

Life Expectancies of All Subadults by Decade			Life
Decade	Life Expectancy	Persons	Decade
1900	1.38	45	1900
1890	1.66	50	1890
1880	1.90	69	1880
1870	3.20	60	1870
1860	3.56	34	1860
1850	2.44	18	1850
1840	4.13	8	1840
<b>Grand Total</b>	2.35	284	<b>Grand Tot</b>

Life Expectancies of German			
Su	badults by Decade		
Decade	Life Expectancy	Persons	
1900	1.59	22	
1890	0.80	20	
1880	1.17	41	
1870	2.91	35	
1860	3.00	14	
1850	1.83	12	
1840	3.50	4	
<b>Grand Total</b>	1.89	148	

A total of 3,368 adults were included in this study: 1,531 females, 1,794 males, and 43 adults of undetermined sex. An undetermined adult has age data present but the gender (sex) designation was ambiguous. This lack of information results from broken grave markers, only a first initial present, or other issues.

For the entire population of adults, 1780 was the decade with the highest average life expectancy at 86.23 years (n=13), while 1850 was the decade with the lowest average life expectancy for adults at 62.31 years (n=291) (Table 5). When divided into the subsection of German adults, 1780 is the decade with the highest average life expectancy at 90.38 years (n=8), while 1870 is the decade with the lowest average life expectancy for German adults at 60.60 years (n=124) (Table 6). These figures suggest that German

adults had a slightly lower life expectancy that the overall population in the 1870s, as suggested when looking at the total population including the subadults. The figures also continue to suggest that the German adults had a higher life expectancy than the overall population in the 1780s. In addition, the life expectancy of the German adult population very closely matched that of the total adult population in this study.

Table 5: Life Expectancies of All Adults by Decade

Table 6: Life Expectancies of German Adults by Decade

Life Ex	Life Expectancies of All Adults		Life Expec	tancies of German	Adults
	by Decade			by Decade	
Decade	Life Expectancy	Persons	Decade	Life Expectancy	Persons
1900	72.24	632	1900	72.63	156
1890	70.25	483	1890	68.13	165
1880	69.34	391	1880	70.03	170
1870	62.60	297	1870	60.60	124
1860	62.46	296	1860	64.13	108
1850	62.31	291	1850	63.83	106
1840	64.67	250	1840	62.20	93
1830	67.63	193	1830	67.51	67
1820	70.92	184	1820	72.14	74
1810	71.93	179	1810	76.65	57
1800	73.89	112	1800	73.42	31
1790	76.15	47	1790	75.59	27
1780	86.23	13	1780	90.38	8
<b>Grand Total</b>	68.30	3368	<b>Grand Total</b>	68.08	1186

For the entire population of adult females, the decade with the highest average life expectancy was 1780 at 86 years (n=4). The decade with the lowest average life expectancy for all adult females was 1850 at 62.34 years (n=134) (Table 7). For the subset of German adult females, the decade with the highest average life expectancy was 1780 at 82 years (n=2); the same as the overall population of adult females. The decade with the lowest average life expectancy for German adult females was 1840 at 62.40 (n=48) (Table 8). These data indicates that German adult females had a lower life expectancy than the overall population in the 1840s and they had their highest life

expectancy for the duration of this study in the decade of 1780, which is the same as the total population. It also reinforces the idea that the life expectancy of the entire adult female population closely matches that of the German adult female population.

Table 7: Life Expectancies of All Females by Decade

Table 8: Life Expectancies of German Females by Decade

Life Expectancies of Adult Females by Decade			
Decade	Life Expectancy	Persons	
1900	73.92	259	
1890	71.38	202	
1880	70.80	208	
1870	63.06	147	
1860	63.56	140	
1850	62.34	134	
1840	65.02	120	
1830	65.28	83	
1820	69.06	88	
1810	71.85	79	
1800	74.25	51	
1790	76.50	16	
1780	86.00	4	
<b>Grand Total</b>	68.67	1531	

Life Expectancies of German					
Decade	Adult Females by Decade  Decade Life Expectancy Persons				
1900	75.72	68			
1890	70.19	72			
1880	71.39	90			
1870	62.55	56			
1860	63.55	56			
1850	64.81	43			
1840	62.40	48			
1830	63.96	28			
1820	70.91	32			
1810	76.77	22			
1800	73.81	16			
1790	76.50	10			
1780	82.00	2			
<b>Grand Total</b>	68.75	543			

When analyzing the 1,794 adult males, 1780 was the decade with the highest average life expectancy for all adult males at 88.86 years (n=7). The decade with the lowest average life expectancy for all adult males was 1860 at 61.94 years (n=154) (Table 9). For the German adult male subset, the decade with the highest average life expectancy was the same as the overall population, 1780 at 94.20 years (n=5), while the decade the lowest average life expectancy for adult males was 1870 at 58.99 (n=68) (Table 10). These figures suggest that German adult males had a lower life expectancy than the overall population in the decade of 1870. The decade with the highest life expectancy was 1780 for the German population as well as the population overall. Again,

this data continues to suggest that the life expectancy of the overall adult male population closely matches that of the German adult male population.

Table 9: Life Expectancies of All Males by Decade

Table 10: Life Expectancies of German Males by Decade

Life Expe	Life Expectancies of Adult Males by Decade			pectancies of Germ It Males by Decade	
Decade	Life Expectancy	Persons	Decade	Life Expectancy	Persons
1900	71.00	368	1900	70.25	88
1890	69.43	281	1890	66.53	93
1880	67.79	181	1880	68.77	78
1870	62.09	148	1870	58.99	68
1860	61.94	154	1860	65.53	51
1850	62.96	149	1850	63.69	62
1840	64.58	128	1840	61.82	44
1830	69.11	105	1830	70.05	39
1820	72.61	90	1820	73.07	42
1810	72.13	95	1810	76.74	34
1800	73.83	58	1800	73.00	15
1790	76.10	30	1790	75.06	17
1780	88.86	7	1780	94.20	5
<b>Grand Total</b>	68.07	1794	<b>Grand Total</b>	67.62	636

In brief, when examining the data as a whole for the overall population, the German population has a lower average life expectancy than the total population. The population trend of a higher average life expectancy in 1780, then decreasing from 1790 to 1870, before beginning to rise again applies to the overall population and the sub-set of Germans. Also, throughout the entire study, females have a slightly higher life expectancy than males.

To explore the disparities of life expectancies between cemeteries, the data was broken down into average life expectancies by cemetery for a given decade. The decade with the lowest life expectancy was 1870, for the overall study. There are 13 cemeteries containing 297 adult individuals for this decade. Of these, five have been identified as solely German cemeteries. When looking at the cemeteries, excluding the German subset,

those buried in St. Peter's Cemetery have the lowest adult life expectancy at 40.60 years (n=10) (Table 11). The cemetery with the lowest adult life expectancy for the German subset is Trinity Old at 21.08 (n=12) (Table 12).

Table 11: 1870 Life Expectancies of Adults by Cemetery

1870 Life Expectancies of Adults			
	by Cemetery		
Cemetery	Life Expectancy	Persons	
Old Settler's	75.12	17	
Opitz	65.67	52	
Rintelmann's	44.38	8	
St. Francis	71.28	36	
St. James	52.45	22	
St. John's	65.79	24	
St. Peter's	40.60	10	
TrNew	67.70	54	
TrOld	21.08	12	
TrSouth	61.50	4	
TrWest	62.45	53	
Union	81.50	4	
Woodworth	49.00	1	
<b>Grand Total</b>	62.60	297	

Table 12: 1870 Life Expectancies of German Adults by Cemetery

1870 Life Expectancies of German Adults by Cemetery				
Cemetery	Life Expectancy	Persons		
TrNew	67.70	54		
TrOld	21.08	12		
TrSouth	61.50	4		
TrWest	62.45	53		
Woodworth 49.00 1				
<b>Grand Total</b>	60.60	124		

The disparities of life expectancies between cemeteries were also considered for the subadult population. The decade with the lowest average life expectancy for subadults was 1900, for the overall study. There are 11 cemeteries containing 45 subadult individuals for this decade. Of these, four have been identified as solely German cemeteries. When looking at the cemeteries as a whole, those buried in St. John's

Cemetery have the lowest subadult life expectancy at 0.17 years (n=6) (Table 13). The cemetery with the lowest subadult life expectancy for the German subset is Trinity West Cemetery at 0.67 (n=3) (Table 14).

Table 13: 1900 Life Expectancies of Subadults by Cemetery

1900 Life Expectancies of Subadults by Cemetery			
Cemetery	Life Expectancy	Persons	
Opitz	0.50	4	
Rintelmann's	2.50	2	
St. Francis	1.33	3	
St. James	1.00	2	
St. John's	0.17	6	
St. Peter's	1.40	5	
TrNew	2.43	7	
TrOld	0.73	11	
TrSouth	8.00	1	
TrWest	0.67	3	
Union	6.00	1	
<b>Grand Total</b>	1.38	45	

Table 14: 1900 Life Expectancies of German Subadults by Cemetery

1900 Life Expectancies of German Subadults by Cemetery				
Cemetery	Life Expectancy	Persons		
TrNew	2.43	7		
TrOld	0.73	11		
TrSouth	8.00	1		
TrWest 0.67 3				
Grand Total 1.59 22				

The Altenburg and Stolz cemeteries can be incorporated into the larger discussion of life expectancies in the Mequon area by looking at the age at death of both adult and subadult inhabitants. Further detail into the osteological assessments of these cemeteries can be found in the *Osteology* section of this paper. Because a range is often noted when determining an age at death, the median age was used for this analysis. Similarly, if less-than-or-equal-to (≤) appeared in the calculation of age, the base age was used. The overall average life expectancy for the Stolz Cemetery was 23.15 years (n=10) (Table

15). In regards to the Altenburg cemetery, the overall average life expectancy was 25.04 years (n=13) (Table 16).

Table 15: Stolz Cemetery Age at Death by Age Category and Sex

Stolz Cemet	ery Age at Death by Age Cato	egory and Sex
<b>Adult Female</b>	Age at Death	Median (years)
Stolz Burial 1	> 20 Years	20
Stolz Burial 8	35-50 Years	42.5
Adult Male	Age at Death	Median (years)
Stolz Burial 2	24-82 Years	53
Stolz Burial 6	23-69 Years	46
Stolz Burial 7	25-83 Years	54
Subadult	Age at Death	Median (years)
Stolz Burial 3	1 Year	1
Stolz Burial 4	1-6 Years	3.5
Stolz Burial 5	6-13 Years	9.5
Stolz Burial 9	9 Fetal month - 2 Years	1
Stolz Burial 10	9 Fetal month - 2 Years	1

Table 16: Altenburg Cemetery Age at Death by Age Category and Sex

Altenburg Cemeter	y Age at Death by Age Cate	gory and Sex
Adult Female	Age at Death	Median (years)
Altenburg Burial 4	> 20 Years	20
Altenburg Burial 5	> 20 Years	20
Altenburg Burial 6	≤ 27 Years	27
Altenburg Burial 7	24-82 Years	53
Altenburg Burial 8	20-75 Years	47.5
Altenburg Burial 9	24-82 Years	53
Altenburg Burial 12	≤ 46 Years	46
Adult Male	Age at Death	Median (years)
Altenburg Burial 3	24-82 Years	53
Subadult	Age at Death	Median (years)
Altenburg Burial 1, 1	≤ 8 Fetal months	0
Altenburg Burial 1, 2	≤ 8 Fetal months	0
Altenburg Burial 10	2-5 Years	3.5
Altenburg Burial 11	8 Fetal months - 2 Years	1
Altenburg Burial 2	1-2 Years	1.5

Of the two cemeteries, adults from the Stolz Cemetery have a higher average life expectancy, at 43.1 years (n=5), than the Altenburg adults at 39.94 (n=8). Similarly, subadults from the Stolz Cemetery have a higher average life expectancy at 3.20 years (n=5), than the Altenburg subadults at 1.20 years (n=5). The overall adult life expectancies for the Altenburg and Stolz cemeteries are considerably lower than the overall adult life expectancies of the demography study population (68.30 years, n=3,368), while the overall subadult life expectancy was only slightly lower than subadults from the other area cemeteries (2.35 years, n=284).

When the adults of the Altenburg and Stolz cemeteries are separated into male and female categories, the female inhabitants of the Stolz Cemetery have an average life expectancy of 31.25 years (n=2), which is less than that of the females of the Altenburg Cemetery at 38.07 (n=7). Similarly, male inhabitants of the Stolz Cemetery have a lower average life expectancy at 51 years (n=3) when compared to the adult males of the Altenburg Cemetery at 53 years (n=1). Both adult males and adult females of the Altenburg and Stolz cemeteries have lower average life expectancies than the other area cemeteries.

In conclusion, the average life expectancies of all individuals included in this study trended downward from the start of the study, 1780, to the decade with the lowest average life expectancy, 1870, before trending upward in the later part of the study to its end in 1910. This trend is best represented in Figure 3 below. The German subset trended in a similar fashion, while having a lower average life expectancy overall. One possible explanation for this is that 11.09% of the German subset consists of subadults, whereas the total population included a subadult population of 7.77%. In the Altenburg

and Stolz cemetery populations, the subset of subadults was 43.48%. This does not necessarily indicate that more German subadults died at a younger age than the rest of the Mequon area population. It may only suggest that the total population was burying a greater number of their deceased children on their homestead property, which was a common practice at the time, rather than in the documented cemeteries included in this study (Mytum 2004). This theory is supported by the fact that the Altenburg and Stolz cemeteries are small scale cemeteries that were unmarked at the time of exhumation with a substantial percentage of subadults included in their populations.

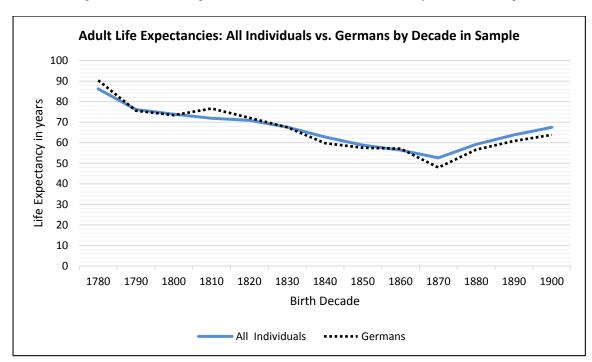


Figure 3: Adult Life Expectancies: All Individuals vs. Germans by Decade in Sample

Many diseases affect the youngest and oldest segments of the population most severely. Within the duration of this study, 1780 to 1910, many diseases afflicted the Wisconsin population, including measles, mumps, typhoid fever, and tuberculosis. Also of note is the 1849-1854 cholera epidemic. The absence of sewer systems and clean water sources increased the threat of waterborne illnesses. In addition, the newly incorporated

passenger and freight railroad, with stations in Mequon and Thiensville, would have helped to spread these communicable diseases (Corrigan 1950).

Thousands of Wisconsin natives were killed in the Civil War from 1861 to 1865. Not only were they killed in battle, but also by the spread of disease. While many were away as a part of the war effort, at home there was a great blizzard and freeze on January 1, 1862. In the Mequon area, large numbers of people and livestock died as a result of the weather. In addition, historic references describe a group of enlisted persons on their way to Fond du Lac who were caught in the blizzard and perished (Corrigan 1950).

## Geographic Information Systems

Geographic information systems allow history to connect with geography (Marti-Henneberg 2011). Using these relationships, it may be possible to determine why certain sites were picked for use as settlements or cemeteries. Altenburg and Stolz are historic cemeteries. As such, there are hints of their existence in historical records.

Documentation on Andreas Geidel's arrival from Saxony and land purchase records reveals he was the original owner of the property that would become the Altenburg Cemetery. The location of the Altenburg Cemetery was Section 28, Township 9, North Range 21 East, City of Mequon, Ozaukee County, Wisconsin (Rusch 1989).

The German Evangelical Lutheran Cemetery (also known as the Stolz Cemetery site) was located at 3818 W. LeMont Boulevard, Section 36, City of Mequon, Ozaukee County, Wisconsin (Meer 1990). In 1841, Joachim Dumstrey purchased the property that would become the Stolz Cemetery, which he sold to Johann Schauss in 1859. The land history of the Altenburg and Stolz cemeteries helps to define the characteristics of their populations. Ozaukee County (established 1950) (Figure 4) is bordered by Sheboygan County (to the north), Lake Michigan (to the east), Milwaukee County (to the south), and Washington County (to the west).

Ozaukee County, Wisconsin Wisconsin Sheboygan 180 Kilom eters 100 Miles Ozaukee

Milwaukee

Figure 4: Ozaukee County, Wisconsin

Of the 17 cemeteries included in the demographic study, 15 were geographically located by the author (not including the Altenburg and Stolz cemeteries). These 15 cemeteries are as follows: Buffalo, Frank Family, G. Opitz, Green Bay Road, Old Settler's, Resurrection, St. Francis, St. James, St. John's, Trinity Evangelical Lutheran Old, Trinity Evangelical Lutheran New, Trinity Lutheran South, Trinity West, Union, and Woodworth Cemeteries. St. Cecelia's Cemetery and St. Peter's Cemetery are not included in the GIS study, as St. Cecelia's inhabitants are believed to have been removed in the late 20<sup>th</sup> century and the location of the cemetery was not found by the author. St. Peter's Cemetery is located at the northern end of Milwaukee County, and is thus not included in the map of Ozaukee County. St. Peter's Cemetery's inclusion in this study was determined to be worthwhile; however, as it is thought that the Stolz Cemetery's descendants were later buried there according to the archivist at the Mequon-Thiensville Historical Society.

It is recognized that Green Bay Road, or Green Bay Trail as it was then known, was a main line of transport coming out of Milwaukee when the Mequon area was being settled. In Figure 5, the Green Bay Road and Trinity Lutheran South cemeteries are located along Green Bay Road. Further examination of Figure 5 reveals that several cemeteries are located east to west along a single road, Mequon Road. Also, there are three closely placed cemeteries in the west portion of the map, located near the corner of Freistadt and Granville Roads. The earliest evidence for burials in the cemeteries on Green Bay Road, Mequon Road, and Freistadt/Granville Roads occurred in the 1840s and 1850s, which supports the idea that these cemeteries were associated with early settlement areas and these roads were likely main thoroughfares at the time.

Study Cemeteries Ozaukee County, Wisconsin Green Bay Road Woodworth Old Settler's Buffalo ... Trinity Evangelical Lutheran Old Trinity West G: Opitz St. Jam es Trinity Evangelical Lutheran New Altenburg Ressurection Milwaukee 4 Kilom eters 0.5 2 Miles

Figure 5: Study Cemeteries Ozaukee County, Wisconsin

In order to directly associate cemeteries with early settlements, seven of the earliest known settlements have been included in Figure 6. These settlements are referred to by the last name of the property owner or eventual owner, save the final name listed: Bigelow (1836), Woodworth (1837), Turck (1838), Altenburg (1839), Bonniwells (1839), Opitz (1839), and Freistadt (1839) (Boehlke 1989; Corrigan 1950). Most historical documents listed families or groups who settled in Mequon and the surrounding area along with the year of settlement, but few described the location of their settlement. This is why there are just seven settlements included in Figure 6. The earliest maps, from 1867 and 1873, list many surnames and locations. However, nearly 30 years had passed from the earliest settlers to the time of the maps. These data were not sufficiently reliable for use.

Of the seven settlements, four are near the Milwaukee River. Land along the river may have been preferred not only for the transportation option, but also for the food and water the river provided. Of note is that there are no known settlements or cemeteries located along Lake Michigan.

In four cases, settlements are associated with known cemeteries. The remaining three settlements do not have cemeteries associated with them. The lack of an associated cemetery could mean that one may have existed, but is no longer marked. Another reason for the lack of association may be the settlement inhabitants' relationship with neighboring homestead cemeteries. Finally, burials increasingly transitioned from the homestead cemetery to other larger cemeteries with community, ethnic, or religious ties as the immigrants became more established.

The religious settlement of Freistadt, the settlement farthest west on the map, consists of a church and three cemeteries. In 1845, the congregation at Freistadt split into two groups, the Buffalo Synod and Missouri Synod (Boehlke 1989). Two of the three cemeteries belong to the Missouri Synod and one belongs to the Buffalo Synod.

Historical documentation revealed that the area surrounding the Altenburg

Cemetery was settled by Andreas Geidel and his family in 1839 (Rusch 1989). The 1852

sale of a half-acre parcel to the Trustees of the Altenburg Lutheran Church Society

describes that land as a graveyard (Rusch 1989). It is unclear who was buried in the

Altenburg Cemetery, but local tradition suggests Geidel family members were buried

there

Historical documents also disclosed that Joachim Dumstrey and his family were early members of the Freistadt settlement before he purchased the property that would eventually become the Stolz Cemetery (Boehlke 1989, Meer 1990). Dumstrey sold the land to Johann Schauss in 1859. An 1867 map shows a church, The Evangelical Lutheran Church of the Town of Mequon, located on the Schauss property. However, this church and cemetery were not included on later maps of the area (Meer 1990) and it remains unclear how Schauss and the church are connected as physical evidence of this church has yet to be identified. The Stolz cemetery is not listed as being associated with an early settlement, as evidence was not found to support this hypothesis. Also of note, the water near the Stolz cemetery in Figure 6 is a man-made lake that was not present at the time of the Stolz burials.

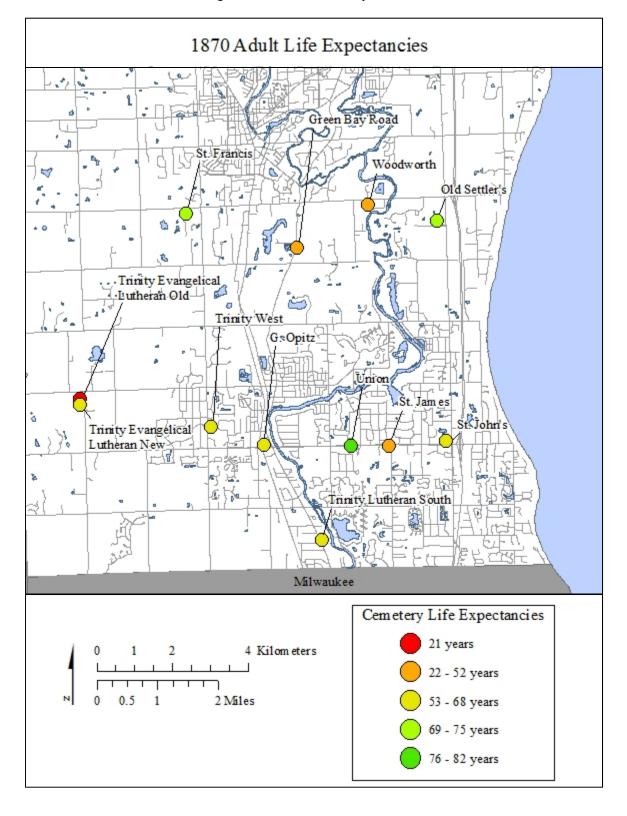
Study Cemeteries and Settlements Ozaukee County, Wisconsin Green Bay Road St. Francis Woodworth Old Settler's Buffalo Trinity Evangelical Trinity West G: Opitz St. Jam es Trinity Evangelical Lutheran New Altenburg Ressurection Milwaukee Legend 4 Kilom eters Cemetery Settlem ent 0.5 2 Miles

Figure 6: Study Cemeteries and Settlements Ozaukee County, Wisconsin

To further describe the disparities in the life expectancies of adults as outlined in the preceding discussion, a map was created to spatially represent the decade with the lowest life expectancy for sample overall in 1870 (Figure 7). There are 13 cemeteries containing 297 adults for this decade. The complete sample included 17 cemeteries; however, cemeteries were not represented if they did not have grave markers of persons born in the decade that began in 1870.

In the complete sample, those buried at St. Peter's Cemetery had the lowest adult life expectancy at 40.60 years (n=10). St. Peter's is not on the map, but it can be included because it was as located on the northern border of Milwaukee County, near the river. The cemetery with the next lowest adult life expectancy, in the complete sample, was the Green Bay Road Cemetery at 44.38 years (n=8). Those buried at Trinity Old Cemetery had the lowest adult life expectancy for the German subset at 21.08 years (n=12). Spatially, there does not seem to be a correlation between those cemeteries with the lowest life expectancies (Figure 7).

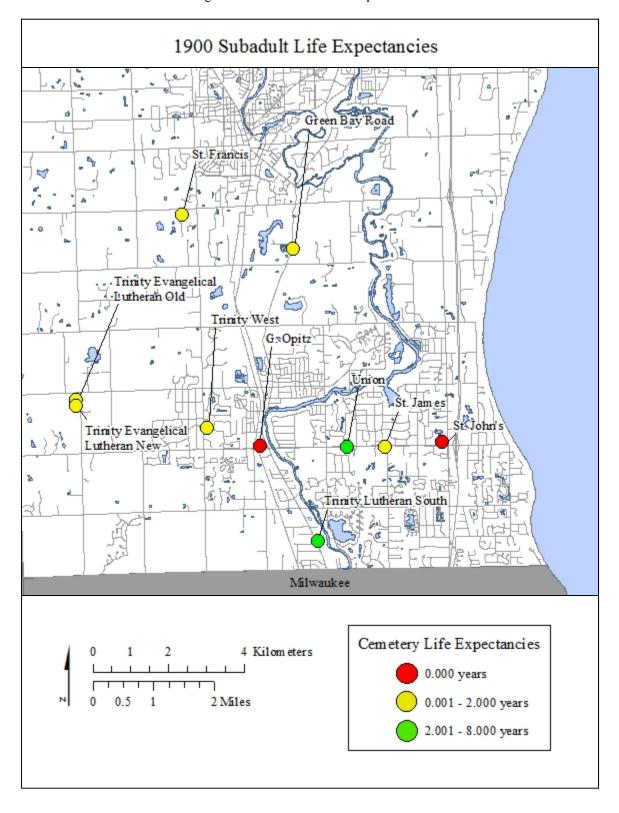
Figure 7: 1870 Adult Life Expectancies



A second map was created to spatially represent the decade with the lowest life expectancy for the overall subadult population in the decade beginning in 1900 (Figure 8). There are 11 cemeteries containing 45 subadult individuals for this decade in the sample. As previously explained, the complete demographic study included 17 cemeteries; however cemeteries are not represented if they did not have grave markers of subadults born in the decade of 1900.

For the overall subadult population, those buried at St. John's Cemetery have the lowest subadult life expectancy at 0.17 years (n=6). Those buried at Trinity West Cemetery have the lowest subadult life expectancy for the German subset at 0.67 years (n=3). Spatially, there does not seem to be a correlation between cemeteries with the lowest subadult life expectancies (Figure 8).

Figure 8: 1900 Subadult Life Expectancies



Of the 17 cemeteries included in the demographic and GIS analyses, three cemeteries are associated with known settlements, 10 are associated with known churches (some of which are churches associated with settlements), and four have no known settlement affiliation. Adding in the Altenburg and Stolz Cemeteries, it might be presumed that the Altenburg Cemetery was associated with a known settlement, while the Stolz Cemetery was perhaps associated with a known church.

Andreas Geidel and his second wife, Christine Scheunert Geidel, are named on gravestones at the Trinity South Cemetery. However, a source suggests that Mr. Geidel's first wife, Christine Kertscher Geidel, is buried on the Geidel homestead. This source is a book of the Geidel family history that can be found at the Mequon-Thiensville Historical Society. This implies that his first wife was buried at the Altenburg Cemetery. This may help to support that there was a transition away from burials on the homestead to burials in public cemeteries.

In conclusion, the land history documentation of the Altenburg and Stolz Cemeteries revealed that the inhabitants are likely those of German immigrants and their descendants. Spatially characterizing the Altenburg and Stolz Cemeteries has allowed for them to be compared to other contemporary cemeteries by including the visualization of life expectancies.

## Osteology

In 2008, final disposition for the skeletal remains from both cemeteries was transferred to the University of Wisconsin - Milwaukee. The remains were accessioned, stabilized, and conserved by the author, Emily Laak, and David Stock under the direction of the Dr. Robert Jeske, Project Director, and Alexis M. Jordan, Project Supervisor between 2011 and 2014.

The reports compiled by the Wisconsin Historical Society were reviewed before the analysis was initiated. These reports were invaluable in reconstructing a history of the cemeteries. In addition, the previously completed osteological analyses provided a guide to understanding the population. Carrying out an updated osteological analysis of the Altenburg and Stolz Cemetery sample allowed an updated identification of biological characteristics of this collection of German immigrants and their descendants to be documented.

The ages of the Altenburg Cemetery inhabitants were initially determined by Rusch and Cotter at the Wisconsin Historical Society in 1989 and 2004, respectively. Age determinations were re-visited by the author in 2014 using accepted osteological methods outlined by Suchey-Brooks (1990), Todd (1921), Osborne (2004) and Meindl and Lovejoy (1985). The following adult skeletal elements were scored for age estimation: pubic symphysis, auricular surface, and cranial suture closure. The subadult skeletal elements were assessed for age using cranial elements including: sphenoid, temporal, occipital, mandible, and maxilla (including dentition). In addition, non-cranial elements were used in assessment, these included: sacrum, vertebrae, os coxa, humerus, and pelvis. The results can be viewed in tables 17 and 18.

The sex of each individual from the Altenburg Cemetery was initially determined by Wade and Cotter at the Wisconsin Historical Society in 1988 and 2004, respectively. The results can be seen in Tables 18 and 20. The sexes of individuals were re-evaluated by the author at the Archaeology Lab in 2014 using accepted osteological methods outlined by Steele (1976), Stewart (1979), Phenice (1969), Walker (2005), Buikstra and Ubelaker (1994), and Acsadi and Nemeskeri (1970). The following skeletal elements were scored for osteometric sex estimation: talus, humeral head, and femoral head. For non-metric sex estimation, the ventral arc, subpubic concavity, ischiopubic ramus ridge, greater sciatic notch and the preauricular sulcus were scored on the pelvis. In addition, the nuchal crest, mastoid process, supraorbital margin, glabella, and mental eminence were scored on the skull. Because determining sexes of subadults is not possible due to their pre-pubescent status, no subadult remains were sexed for the Altenburg or Stolz Cemeteries. The results can be viewed in Tables 17 and 19. An indeterminate designation is the result of fragmented skeletal elements which could not be adequately assessed.

Table 17: Altenburg Cemetery: Adult Age and Sex Determination 2015

	Altenburg Cemetery: Adult Age and Sex Determination								
Burials	Non-metric Sex	Osteometric Sex	Category Age	Age Range					
Burial 3	Indeterminate	Male	Middle Adult	24-82 y					
Burial 4	Indeterminate	Indeterminate	Indeterminate	> 20 y					
Burial 5	Probable Female	Indeterminate	Indeterminate	> 20 y					
Burial 6	Probable Female	Indeterminate	Young Adult	≤ 27 y					
Burial 7	Probable Female	Indeterminate	Indeterminate	24-82 y					
Burial 8	Probable Female	Indeterminate	Indeterminate	20-75 y					
Burial 9	Probable Female	Female	Middle Adult	24-82 y					
Burial 12	Female	Indeterminate	Indeterminate	≤ 46 y					

y = years

Table 18: Altenburg Cemetery: Initial Adult Age and Sex Determination

Altenburg: Initial Adult Age and Sex Determination								
	Age 1988	Sex 1988	Age 2004	Sex 2004				
Burials	Wade	Wade	Cotter	Cotter				
Burial 3	> 45 y	Male	> 40 y	Male				
Burial 4	> 22 y	Female	> 27 y	Indeterminate				
Burial 5	> 22 y	Female	> 27 y	Female				
Burial 6	17-20 y	Female	18-25 y	Female				
Burial 7	> 45 y	Male	39-67 y	Male				
Burial 8	> 22 y	Female	> 60 y	Female				
Burial 9	> 25 y	Female 30-40 y		Female				
Burial 12	> 25 y	Female	45-50 y	Female				

y = years

Table 19: Altenburg Cemetery: Subadult Age Determination 2015

Altenburg Cemetery: Subadult Age Determination							
Burials	Age Range						
Burial 1, 1	Prenatal	≤ 8 fm					
Burial 1, 2	Prenatal	≤ 8 fm					
Burial 2	Prenatal	1-2 y					
Burial 10	Early Childhood	2-5 y					
Burial 11	Prenatal	8 fm-2 y					

y = years, fm = fetal months

Table 20: Altenburg Cemetery: Initial Subadult Age Determination

Altenburg: Initial Subadult Age Determination							
Age 1988 Age 2004							
Burials	Wade	Cotter					
Burial 1, 1	7 fm	7-8 fm					
Burial 1, 2	7 fm	7-8 fm					
Burial 2	1-2.5 y	2 y 8 m					
Burial 10	6.9-7.4 y	5-7 y					
Burial 11	7 fm	7.5-8 fm					

y = years, m = months, fm = fetal months

The ages of the Stolz Cemetery inhabitants were determined by Meer at the Wisconsin Historical Society in 1990 and were re-evaluated by the author in 2014.

Meer's results can be viewed in Tables 22 and 24. The same adult and subadult skeletal

elements were used for the Stolz cemetery as were used in the Altenburg Cemetery analysis, above. The results can be viewed in Tables 19 and 20.

The sex of each individual from the Stolz cemetery was initially determined by Meer at the Wisconsin Historical Society in 1990 and was re-visited by the author in 2014 using the same methods as for the Altenburg Cemetery material described above. The results can be viewed in Tables 21 and 23.

Table 21: Stolz Cemetery: Adult Age and Sex Determination 2015

	Stolz Cemetery: Adult Age and Sex Determination								
Burials	rials Non-metric Sex Osteometric Sex Category Age Age								
Burial 1	Probable Male	Female	Indeterminate	> 20 y					
Burial 2	Probable Male	Indeterminate	Middle Adult	24-82 y					
Burial 6	Male	Male	Middle Adult	23-69 y					
Burial 7	Male	Male	Middle Adult	25-83 y					
Burial 8	Male	Female	Middle Adult	35-50 y					

y = years

Table 22: Stolz Cemetery: Initial Adult Age and Sex Determination

Stolz: Initial Adult Age and Sex Determination						
	Age 1990 Sex 1990					
Burials	Meer Meer					
Burial 1	65-75+ y	Female				
Burial 2	55-65+ y	Male				
Burial 6	30-34 y	Male				
Burial 7	50-65 y	Male				
Burial 8	40-58 y	Female				

y = years

Table 23: Stolz Cemetery: Subadult Age Determination 2015

Stolz Cemetery: Subadult Age Determination							
Burials	Category Age	Age Range					
Burial 3	Prenatal	1 y					
Burial 4	Early Childhood	> 1y-< 6 y					
Burial 5	Late Childhood	6-13 y					
Burial 9	Prenatal	9 fm-2 y					
Burial 10	Prenatal	9 fm-2 y					

y = years, fm = fetal months

Table 24: Stolz Cemetery: Initial Subadult Age Determination

Stolz: Initial Subadult Age Determination					
Burials Age 1990 Meer					
<b>Burial 3</b> 9-12 fm					
Burial 4	5.5-6.5 y				
Burial 5	2.5-3.5 y				
<b>Burial 9</b> 9-11 fm					
<b>Burial 10</b>	9-11 fm				

y = years, fm = fetal months

In the case of Altenburg Cemetery burial 4, most of the evaluation resulted in the classification of indeterminate adult, but when taking into account the overall robusticity of the skeleton, female sex can be cautiously assigned. As noted in White et al. 2012, the gracile, smaller elements are usually female.

In Stolz Cemetery burial 1, the non-metric assessment resulted in the assignment of probable male, while the osteometric assessment revealed female. As this resulted in an indeterminate identification, the pelvis was deferred to. As noted in White et al. 2012, because the sexes overlap at the center of distribution, the elements of the skull and pelvis are traditionally concentrated on. Taking this into account, this individual was provisionally assigned the female sex. This was also the case for Stolz Cemetery burial 8. The non-metric assessment resulted in an assignment of male, while the osteometric

assessment resulted in classification as female. This resulted in the indeterminate category being assigned; however, concentrating on the pelvis allowed for the assignment of the female sex.

Pathology is known as the cause and effect of disease. Paleopathology refers to the diseases that can be seen on human and animal remains (White et al. 2012). For this analysis, the author focused on describing the paleopathologies present in the Altenburg and Stolz Cemeteries.

In the adult population of the Altenburg Cemetery, the two most prevalent paleopathologies were lytic lesions and osteophytic lipping (Table 25). All adult individuals of the Stolz Cemetery had osteophytic lipping present. This was the most prevalent paleopathology of the Stolz population (Table 26). Lytic lesions appear as bone being eaten away, as opposed to blastic lesions that appear as bone deposits (White et al. 2012). Osteophytes, the cause of osteophytic lipping, are projecting spicules of bone that can be associated with osteoarthritis (White et al. 2012). Osteophytic lipping can be seen in Figure 9.

Table 25: Altenburg Cemetery: Adult Skeletal Paleopathology and Trauma

Altenburg: Adult Skeletal Paleopathology and Trauma								
	Burial							
	3	4	5	6	7	8	9	12
Unidentified Lesions								
Blastic	Х		Х		Х			
Lytic		Χ	Х		Χ	Х		Χ
Non-specific Infection								
Osteitis								Χ
Neoplastic Conditions								
Osteoma								Χ
Growth and Developmental Stress								
Cribra Orbitalia		Х	Х					
Porotic Hyperstosis								
<b>Growth and Developmental Stress Anor</b>	nalies							
Bi-parietal Thinning						Х		
Butterfly Vertebra							Χ	
Joint Pathology								
Anklyosis								
Eburnation	X				Χ			
Schmorl's Nodes							Χ	
Osteophytic Lipping	X	Х		Х	Χ	Х		
Joint Degeneration	X	Χ						
Kyphosis								
Trauma								
Healed fracture	Х							
Total # of Paleopathologies/Trauma	5	4	3	1	4	3	2	3

Figure 9: Altenburg Burial 4: Osteophytic Lipping - photo by author



Table 26: Stolz Cemetery: Adult Skeletal Paleopathology and Trauma

Stolz: Adult Skeletal Paleoathology and Trauma								
	Burial	Burial	Burial	Burial	Burial			
	1	2	6	7	8			
Unidentified Lesions								
Blastic	Х	Х	Χ	Х				
Lytic	Х	Χ		Χ	Χ			
Non-specific Infection								
Osteitis	Х	Χ						
Neoplastic Conditions								
Osteoma		Χ						
Growth and Developmental Stress								
Cribra Orbitalia								
Porotic Hyperstosis			Χ					
Joint Pathology								
Anklyosis		Х						
Eburnation		Х		Х				
Schmorl's Nodes				Х				
Osteophytic Lipping	Х	Χ	Χ	Χ	Χ			
Joint Degeneration								
Kyphosis		Х						
Joint Pathology Anomaly								
Vertebra Collapse		Х						
Trauma								
Healed fracture	Х	Χ	Χ	Х				
Total # of Paleopathologies/Trauma	5	10	4	6	2			

Trauma is described as change to bone including: fracture, dislocation, disrupting blood supply or nerves, or artificially deforming it (White et al. 2012). In the case of the Altenburg and Stolz Cemetery individuals, fractures were the only types of trauma present. In all cases, the fractures were healed. In cases of healing, a bony callus forms to heal the fracture (White et al. 2012). The adult population of the Altenburg Cemetery revealed one instance of healed fracture, whereas four individuals from the Stolz Cemetery adult population had healed fractures present. An example of a healed fracture can be seen in Figure 10.

Figure 10: Altenburg Burial 3: Healed Fracture - photo by author



In the subadult population, only one individual had an occurrence of paleopathology and no subadults revealed any type of trauma. One subadult in the Altenburg Cemetery (Burial 2) presented signs of cribra orbitalia. Considered a growth or developmental stress marker, cribra orbitalia is characterized by small lesions in the eye orbits. Studies suggest it is caused by iron-deficiency or other types of deficiencies (White et al. 2012).

Dentition reveals physical and biological changes, but is also affected by genetic predisposition. In both the Altenburg and Stolz Cemetery adult populations, there are examples of dental paleopathologies. There were no examples of dental paleopathology in the study's subadult population. In many instances, among the adult population, periodontal disease is present. Periodontal disease ultimately causes recession of the alveolar bone (White et al. 2012). An example of recession of the alveolar bone can be seen in Figure 11.

Enamel hypoplasia was witnessed in Stolz Cemetery Burial 6. Characterized as lines, pits, and grooves on the surface of tooth crowns, enamel hypoplasia forms as a

result of biological stress and developmental defects (Ortner 2003; White et al. 2012).

The dental traits of the Altenburg and Stolz Cemeteries, which can be viewed in Tables

27 and 28, reveal information on environment, development, and diet.



Figure 11: Altenburg Burial 9: Recession of Alveolar Bone - photo by author

Table 27: Altenburg Cemetery: Adult Dental Paleopathology

Alten	Altenburg: Adult Dental Paleopathology							
	Burial	Burial	Burial	Burial	Burial	Burial	Burial	Burial
	3	4	5	6	7	8	9	12
Growth and Developmental Stress								
Enamel Hypoplasia								
Periodontal Disease								
Calculus	Х	Х	Х	Х	Χ	Χ	Χ	Х
Caries	Х	Х	Χ	Χ	Χ		Χ	Χ
Abscess								
Remodeled Alveolous/Tooth Loss	Х	Х	Χ		Χ	Χ	Χ	Х
Anomolous Condition								
Peg Tooth								Х
Possible Cultural Modification								
Unidentified Wear	Х							
Total # of Dental Paleopathologies	4	3	3	2	3	2	3	4

Table 28: Stolz Cemetery: Adult Dental Paleopathology

Stolz: Adult Dental Paleopathology							
	Burial 1	Burial 2	Burial 6	Burial 7	Burial 8		
Growth and Developmental Stress							
Enamel Hypoplasia			Х				
Periodontal Disease							
Calculus	Χ	Χ	Х				
Caries	Х	Χ	Х				
Abscess							
Remodeled Alveolous/Tooth Loss	Х						
Anomolous Condition							
Peg Tooth							
Possible Cultural Modification							
Unidentified wear		Х					
Total # of Dental Paleopathologies	3	2	3	0	0		

Using current methods of skeletal aging and sexing has allowed for the most accurate understanding of the Altenburg and Stolz Cemeteries. The Altenburg Cemetery population consisted of seven adult females, one adult male, and five subadults, for a total of 13 individuals. The Stolz Cemetery contained two adult females, three adult males, and five subadults, for a total of 10 individuals. Females outnumber males in the Altenburg Cemetery, while males outnumber females in the Stolz Cemetery.

When looking at the paleopathologies of the Altenburg and Stolz cemeteries, it was found that adult males had more joint pathologies than adult females (Altenburg burial 3, Stolz burial 2, and Stolz burial 7). The adult male in Stolz Cemetery Burial 6 was an exception, with only one type of joint pathology. The large number of joint pathologies could be indicative of a physically burdened lifestyle.

The large amount of dental paleopathologies throughout the study provides corresponding data for the overall health of the population. The same individual with evidence of enamel hypoplasia also had evidence of porotic hyperostosis (Stolz Burial 6).

Both paleopathologies are signs of biological or developmental stressors. This is an example of disease that is developed as a subadult, but can still be seen in the adult population. The biological characteristics of the Altenburg and Stolz populations, as provided in this section, serves as a rare glimpse into the transitional time of German immigration to southeastern Wisconsin.

## **Chapter VI. Discussion**

The historical, demographic, spatial, and osteological data from the Altenburg
Lutheran Church Society Cemetery (Altenburg Cemetery) and the German Evangelical
Lutheran Cemetery (Stolz Cemetery) has provided a unique look into early German
settlement and burial in southeastern Wisconsin. As the cemeteries were unmarked and
only found and recovered as the result of construction projects, the dates of use have been
determined by material evidence (coffin hardware) and by lack of material evidence. The
following questions were developed to accurately assess the Altenburg and Stolz
Cemetery populations and to incorporate them into the larger picture of the surrounding
population of the mid-nineteenth to early twentieth centuries.

Where did the early German immigrants settle and place their burials in Mequon, Wisconsin?

Of the seven earliest settlements, four are near the Milwaukee River. These sites may have been chosen due to the transportation the river offers, as well as the food and water the river provided. Two settlements on the river and two settlements west of the river are associated with known cemeteries. Three reasons were suggested to why some settlements may not have associated cemeteries: 1. A cemetery may have existed, but is no longer marked. 2. The settlement's inhabitants had a relationship with a neighboring homestead cemetery. 3. Burials transitioned from the homestead cemetery to other larger cemeteries with community, ethnic, or religious ties as the immigrants became more established. There is not likely one reason for this, but a combination of factors.

Further exploration of the topic of settlements and burial location could be evaluated by comparing this study, completed in the Mequon area, to the city of Milwaukee.

*In this area, what types of cemeteries are common among German immigrants?* 

Of the 17 cemeteries assessed in the demographic and GIS studies, three are associated with known settlements, 10 are associated with known churches (some of which are churches associated with settlements), and four are of unknown affiliation. When the Altenburg and Stolz Cemeteries are included, it is possible that the Altenburg Cemetery was associated with a known settlement, while the Stolz Cemetery was associated with a known church.

Studies regarding a further breakdown into subsets of German immigrants could be warranted, as there was a large population of German Catholics in addition to German Lutherans (Gurda 1999).

What were the life expectancies of the German immigrants from 1780 to 1910?

The average life expectancies of all individuals included in the demography study trended downward from the start of the study, 1780, to the decade with the lowest average life expectancy, 1870, before trending upward again in the later part of the study to its end in 1910. The German subset trended in a similar fashion, while having a lower average life expectancy overall.

Stories of religious freedom and economic success were communicated from Wisconsin while economic distress and political unrest took hold in Germanic Prussia. These stories encouraged the second wave of Lutheran immigrants that reached Wisconsin between 1854 and 1860 (Gurda 1999). The downward trend from 1780 to

1870 reveals a struggle for early settlers which was unknown to the newcomers, but is revealed in this demographic study.

Of the German subset, 11.09% consists of subadults, whereas the total population included a subadult population of 7.77%. When only considering the Altenburg and Stolz Cemetery populations, the subset of subadults was 43.48%. This does not necessarily indicate that more German subadults died at a younger age than the rest of the Mequon area population. It may only suggest that the total population was burying a greater number of their deceased children on their homestead property, which was a common practice at the time, rather than in the documented cemeteries included in this study (Mytum 2004). This theory is supported by the fact that the Altenburg and Stolz cemeteries are small scale cemeteries that were unmarked at the time of exhumation with a substantial percentage of subadults included in their populations.

A variety of future studies could be pursued to further explore these life expectancies in other contexts. One way could be to conduct further strontium isotope analyses to compare the health of immigrants to that of their descendants. This may reveal an explanation for the life expectancy trends discovered in this demographic study. Another would be to assess these life expectancies against life expectancy data at the county, state, or national level to further develop trends in the study.

What were the biological characteristics of the inhabitants of the Altenburg and Stolz cemeteries?

As noted above, 43.48% of the Altenburg and Stolz Cemetery populations consisted of subadults. The Altenburg Cemetery consisted of seven adult females, one adult male, and five subadults. The Stolz Cemetery contained two adult females, three

adult males, and five subadults. When looking at the paleopathologies of the Altenburg and Stolz cemeteries, it was found that adult males had more joint pathologies than adult females. The large number of joint pathologies could be indicative of a physically burdened lifestyle. In addition, unidentified lesions, infections, neoplastic conditions, growth and developmental stress conditions, and traumas were evaluated. Two growth and developmental stress condition anomalies, as well as a joint pathology anomaly were also discovered in the osteological analysis.

Further studies into the Altenburg and Stolz Cemeteries are recommended in the form of analyses regarding the material culture found with the burials. This could lead to a better understanding of individual identities.

By pursuing the answers to these questions, sufficient context was determined in regards to German immigrant settlement and mortuary practices in Mequon, Wisconsin. Because of this, it was possible to incorporate the Altenburg and Stolz Cemeteries into this larger framework.

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							CU 584	
CRANIAL							BOZ 000	9
Frontal	(N)	1	(f)	3			Altenbur	g
Occipital	(N)	2	(f)	4			Burial #	1
Sphenoid	(N)	2	(f)	6			Individual	1&2
Mandible	(N)	1	(f)	4			(Individual = N/A i	fone)
Ethmoid	(N)		(f)				(,,,,,,	
Vomer	(N)		(f)					
Hyoid	(N)		(f)					
Parietal**	Left	(N)	, ,	(f)	Right	(N)	(f)	
Temporal**	Left	(N)		(f)	Right	(N)	(f)	
Maxilla	Left	(N)		(f)	Right	(N)	(f)	
Nasal	Left	(N)		(f)	Right	(N)	(f)	
Zygomatic**	Left	(N)		(f)	Right	(N)	(f)	
Lacrimal	Left	(N)		(f)	Right	(N)	(f)	
Palate	Left	(N)		(f)	Right	(N)	(f)	
Inf. Nas. Conhc.	Left	(N)		(f)	Right	(N)	(f)	
Maleus	Left	(N)		(f)	Right	(N)	(f)	
Incus	Left	(N)		(f)	Right	(N)	(f)	
Stapes	Left	(N)		(f)	Right	(N)	(f)	
Maxillary Teeth	(N)	` '	(f)	` '		. ,	. ,	
Mandibular Teeth	(N)		(f)					
Unclassified Teeth	(N)		(f)					
Wormian Bones	(N)		(f)					
	, , ,							
POSTCRANIAL								
Cervical Vertebrae	(N)	2	(f)					
Thoracic Vertabrae	(N)		(f)					
Lumbar Vertabrae	(N)		(f)					
Unclassified Vertabrae	(N)		(f)	24				
Sacrum	(N)		(f)					
Соссух	(N)		(f)					
Sternum	(N)		(f)					
Ribs	(N)		(f)	13				
Scapula	Left	(N)		(f)	Right	(N)	(f)	
Clavicle	Left	(N)		(f)	Right	(N)	(f)	
Humerus**	Left	(N)		(f)	Right	(N)	(f)	
Radius**	Left	(N)		(f)	Right	(N)	(f)	
Ulna**	Left	(N)		(f)	Right	(N)	(f)	
Carpals	Left	(N)		(f)	Right	(N)	(f)	
Metacarpals	Left	(N)		(f)	Right	(N)	(f)	
Hand Phalanges	Left	(N)		(f)	Right	(N)	(f)	
Innominate**	Left	(N)		(f)	Right	(N)	(f)	
Femur**	Left	(N)		(f)	Right	(N)	(f)	
Patella	Left	(N)		(f)	Right	(N)	(f)	
Tibia**	Left	(N)		(f)	Right	(N)	(f)	
Fibula	Left	(N)		(f)	Right	(N)	(f)	
Tarsals	Left	(N)		(f)	Right	(N)	(f)	
Metatarsals	Left	(N)		(f)	Right	(N)	(f)	
Foot Phalanges	Left	(N)		(f)	Right	(N)	(f)	

*	Ele	ment	s in	Х	fra	gm	en	ts
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Total (N): 39

JB

<sup>\*\*</sup> Further explaination present

	Commer	nts							
**Furth	**Further Explaination:								
Parietal (unsided)	(N)	2	(f)	3					
Temporal (unsided)	(N)	3	(f)	4					
Zygomatic	(N)	2	(f)	4					
Scaplua (unsided)	(N)	3	(f)						
Humerus (unsided)	(N)	2	(f)	3					
Radius (unsided)	(N)	2	(f)	3					
Ulna (unsided)	(N)	3	(f)						
Innominate (unsided)	(N)	4	(f)	6					
Femur (unsided)	(N)	4	(f)	5					
Tibia (unsided)	(N)	4	(f)	6					

Misc. Bags:								
Misc. Cranial	(N)		(f)	>50				
Misc. Phalanges	(N)	2	(f)					
Misc. Limbs	(N)		(f)	12				
Misc. Fragments	(N)		(f)	>40				
Misc. Sediment bag	(N)		(f)					

Fragmented crania

Two individuals, possibly twins, age 7-8 fetal lunar months (Cotter, 2004).

Labels on two original brown bags: "Note: Cranial speciments falling out of original bags 2/18/2009. EM" and "Sediment/Matrix containing human remains;... 2/18/2009. EM"

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

CU 584
BOZ 0009
Altenburg
Burial # 1
Individual 1&2
(Individual = N/A if one)

									CU 584		
CRANIAL								BOZ 0009			
Frontal	(N)	1	(f)						Altenburg		
Occipital	(N)	1	(f)	13				Burial #		2	
Sphenoid	(N)	1	(f)	3				Individu	ıal	N/A	
Mandible	(N)	1	(f)	4				(Individu	al = N/A i	-	
Ethmoid	(N)	1	(f)					1	· · ·	,	
Vomer	(N)		(f)								
Hyoid	(N)		(f)								
Parietal	Left	(N)	1	(f)		Right	(N)	1	(f)		
Temporal	Left	(N)	1	(f)		Right	(N)	1	(f)	5	
Maxilla**	Left	(N)	1	(f)		Right	(N)		(f)		
Nasal	Left	(N)		(f)		Right	(N)		(f)		
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)		
Lacrimal	Left	(N)		(f)		Right	(N)		(f)		
Palate	Left	(N)		(f)		Right	(N)		(f)		
Inf. Nas. Conhc.	Left	(N)		(f)		Right	(N)		(f)		
Maleus	Left	(N)		(f)		Right	(N)		(f)		
Incus	Left	(N)		(f)		Right	(N)		(f)		
Stapes	Left	(N)		(f)		Right	(N)		(f)		
Maxillary Teeth	(N)	•	(f)				•				
Mandibular Teeth	(N)		(f)								
Unclassified Teeth	(N)	1	(f)								
Wormian Bones	(N)		(f)								
					ı						
POSTCRANIAL											
Cervical Vertebrae	(N)		(f)								
Thoracic Vertabrae	(N)		(f)								
Lumbar Vertabrae	(N)		(f)								
Unclassified Vertabrae	(N)	24	(f)	67							
Sacrum	(N)	1	(f)	14							
Соссух	(N)		(f)								
Sternum	(N)	1	(f)	3							
Ribs	(N)		(f)	53							
Scapula	Left	(N)	1	(f)		Right	(N)	1	(f)		
Clavicle	Left	(N)	1	(f)		Right	(N)	1	(f)		
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)		
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)		
Ulna	Left	(N)	1	(f)		Right	(N)	1	(f)		
Carpals	Left	(N)		(f)		Right	(N)		(f)		
Metacarpals**	Left	(N)	·	(f)		Right	(N)		(f)		
Hand Phalanges**	Left	(N)		(f)		Right	(N)		(f)		
Innominate	Left	(N)	1	(f)	3	Right	(N)	1	(f)	3	
Femur	Left	(N)	1	(f)		Right	(N)	1	(f)		
Patella	Left	(N)		(f)		Right	(N)		(f)		
Tibia	Left	(N)	1	(f)		Right	(N)	1	(f)		
Fibula	Left	(N)	1	(f)		Right	(N)	1	(f)		
Tarsals	Left	(N)		(f)		Right	(N)		(f)		
Metatarsals**	Left	(N)		(f)		Right	(N)		(f)		
Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)		

*	Εl	em	ent	ts	in	Х	fra	agr	ne	'n	ts
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Total (N): 69

JB

<sup>\*\*</sup> Further explaination present

Comments							
**Further Explaination:							
Metacarpals (unsided)	(N)	1	(f)				
Hand Phalanges (unsided)	(N)	4	(f)				
Metatarsals (unsided)	(N)	6	(f)				
Foot Phalanges (unsided)	(N)	1	(f)				

Misc. Bags:									
Misc. Pectoral Fragments	(N)	(f)	>13						
Misc. Cranial Sediment	(N)	(f)	>20						
Misc. Cranial	(N)	(f)	43						
Misc. Fragments	(N)	(f)	>73						
Misc. Earth bag and scraping	(N)	(f)							

Fragmented cranium

Age approximately 2 years, 8 months (Cotter, 2004).

A. Frontal and parietal bones of 2 yr old were misplaced and mislabelled in Burial 6 during class use (likely 2009). These elements were reassociated using the 1989 inventory, which noted 2 complete parietals and an incomplete frontal bone for a 2 yr old. The 2004 inventory noted that the frontal bone was warped and the articulation of the left parietal with occipital fragments from Burial 2.

B. Adult cranial bones found in this burial were found to be misplaced. Adult parietal and occipital articulated with Burial 4. The remaining adult cranial bones that could not be articulated were also added to Burial 4, after no better match could be made. These were checked against Burial 4, 5, 6, 7, 8, 10, 11, 12. These burials had fragmented cranium. Cranial bones that could not be articulated have an asterick (\*) on the bags in Burial 4.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

CU 584
BOZ 0009
Altenburg
Burial # 2
Individual N/A
(Individual = N/A if one)

									CU 584	
CRANIAL									BOZ 000	9
Frontal	(N)	1	(f)						Altenbur	g
Occipital	(N)	1	(f)					Burial #		3
Sphenoid	(N)	1	(f)					Individu	ıal	N/A
Mandible	(N)	1	(f)					(Individu	al = N/A i	f one)
Ethmoid	(N)	1	(f)						-	
Vomer	(N)	1	(f)							
Hyoid	(N)		(f)							
Parietal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Temporal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maxilla	Left	(N)	1	(f)		Right	(N)	1	(f)	
Nasal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Palate	Left	(N)	1	(f)		Right	(N)	1	(f)	
Inf. Nas. Conhc.	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maleus	Left	(N)		(f)		Right	(N)		(f)	
Incus	Left	(N)		(f)		Right	(N)		(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Maxillary Teeth	(N)	1	(f)	. ,					,	
Mandibular Teeth	(N)	2	(f)							
Unclassified Teeth	(N)	14	(f)							
Wormian Bones	(N)		(f)							
POSTCRANIAL					_					
Cervical Vertebrae	(N)	7	(f)							
Thoracic Vertabrae	(N)	10	(f)	11						
Lumbar Vertabrae	(N)	5	(f)	10						
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)	>12						
Соссух	(N)		(f)							
Sternum	(N)		(f)							
Ribs	(N)		(f)	>40						
Scapula	Left	(N)	1	(f)	3	Right	(N)	1	(f)	
Clavicle	Left	(N)	1	(f)		Right	(N)	1	(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)		Right	(N)	1	(f)	
Carpals	Left	(N)	8	(f)		Right	(N)	6	(f)	
Metacarpals	Left	(N)	5	(f)		Right	(N)	5	(f)	6
Hand Phalanges	Left	(N)	11	(f)	12	Right	(N)	15	(f)	
Innominate	Left	(N)	1	(f)	3	Right	(N)	1	(f)	3
Femur	Left	(N)	1	(f)		Right	(N)	1	(f)	
Patella	Left	(N)	1	(f)		Right	(N)		(f)	
Tibia	Left	(N)	1	(f)		Right	(N)	1	(f)	
Fibula	Left	(N)	1	(f)		Right	(N)	1	(f)	
Tarsals**	Left	(N)		(f)		Right	(N)		(f)	
Metatarsals**	Left	(N)		(f)		Right	(N)		(f)	
Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)	

*	Elements	in	Х	fragmer	nts
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\*\* Further explaination present

Total (N): 171

JB

Comments							
**Further Explaination:							
Tarsals (unsided)	(N)	14	(f)	16			
Metatarsals (unsided)	(N)	10	(f)				
Foot Phalanges (unsided)	(N)	16	(f)				

Misc. Bags:									
Misc. Scapula and Clavicle	(N)	(f)	>50						
Misc. Arm Bone	(N)	(f)	>25						
Misc. Carpal fragments	(N)	(f)	3						
Misc. Hand (Right)	(N)	(f)	>25						
Misc. Hand (Left)	(N)	(f)	>50						
Misc. Vertebrae	(N)	(f)	>30						
Misc. Innominate	(N)	(f)	>28						
Misc. Tibia	(N)	(f)	1						
Misc. Long Bone (Lower)	(N)	(f)	>100						
Misc. Feet	(N)	(f)	>100						
Misc. Fragments	(N)	(f)	>100						

Complete cranium

Male (Cotter, 2004), age 50-60 years according to 1989 inventory.

Mandibular teeth bagged with mandible.

Maxillary tooth bagged with maxilla.

Other teeth: One bag of 12 and one bag of 5.

Lumbar vertabrae bagged in two separate bags, as that is how they were originally bagged.

First right rib bagged with sacrum piece.

Right pubic bone bagged separately.

Extra right humerus misplaced in Burial 3. Right humerus was found to match Burial 9 and this has been labelled as such and bagged in Burial 9.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

CU 584
BOZ 0009
Altenburg
Burial # 3
Individual N/A
(Individual = N/A if one)

Frontal		_								CU 584	
Decipital   (N)	CRANIAL										
Individual   N/A   Individual   Individual   Individual   Individual   Individual   Individual   Individua	Frontal	(N)	1	(f)					<i> </i>	Altenbur	g
Mandible   (N)	Occipital	(N)	1	(f)	5				Burial #		4
Ethmoid (N) (F) Vomer (N) (F)	Sphenoid	(N)	1	(f)	11				Individu	ıal	N/A
Vomer	Mandible	(N)	1	(f)					(Individu	al = N/A i	f one)
Hyold	Ethmoid	(N)		(f)							
Parietal	Vomer	(N)		(f)							
Temporal	Hyoid	(N)		(f)							
Maxilla**	Parietal	Left	(N)	1	(f)	5	Right	(N)	1	(f)	6
Nasal	Temporal	Left	(N)	1	(f)		Right	(N)	1	(f)	4
Zygomatic	Maxilla**	Left	(N)	1	(f)		Right	(N)	1	(f)	1
Left   (N)	Nasal	Left	(N)	1	(f)		Right	(N)		(f)	
Palate	Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Inf. Nas. Conhc.	Lacrimal	Left	(N)		(f)		Right	(N)		(f)	
Inf. Nas. Conhc.	Palate	Left	(N)				Right	(N)			
Maleus	Inf. Nas. Conhc.	Left	(N)					(N)			
Incus		Left	(N)				Right				
Stapes	Incus	Left	(N)		(f)		Right	(N)		(f)	
Maxillary Teeth         (N)         (f)           Mandibular Teeth         (N)         (f)           Unclassified Teeth         (N)         4         (f)           Wormian Bones         (N)         (f)         (N)         (f)           POSTCRANIAL           Cervical Vertebrae         (N)         7         (f)         8           Lumbar Vertabrae         (N)         5         (f)         10           Unclassified Vertabrae         (N)         (f)         Secrum         (N)         (f)           Scerum         (N)         (f)         N         (f)         Secrum         (N)         (f)         N         (f)         Secrum         (N)         (f)         N         (f)         N         (f)         Secrum         (N)         (f)         N         (f)         N         (f)         N         (f)         Secrum         (N)         (f)         N         (f)         N         (f)         Secrum         (N)         (f)         N	Stapes	Left	(N)		(f)		Right	(N)			
Mandibular Teeth	Maxillary Teeth	(N)		(f)							
POSTCRANIAL											
POSTCRANIAL   Cervical Vertebrae   (N)   6   (f)   7     7     7     8	Unclassified Teeth	(N)	4	(f)							
Cervical Vertebrae	Wormian Bones	(N)									
Cervical Vertebrae		. ,		. ,							
Thoracic Vertabrae (N) 7 (f) 8 Lumbar Vertabrae (N) 5 (f) 10 Unclassified Vertabrae (N) (f) (F	POSTCRANIAL										
Lumbar Vertabrae         (N)         5         (f)         10           Unclassified Vertabrae         (N)         (f)         6           Sacrum         (N)         (f)         6           Coccyx         (N)         (f)         6           Ribs         (N)         (f)         8           Scapula**         Left         (N)         (f)         1           Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         Right         (N)         1         (f)         Right         (N)         1         (f)           Carpals**         Left         (N)         (f)         Right         (N)         (f) </td <td>Cervical Vertebrae</td> <td>(N)</td> <td>6</td> <td>(f)</td> <td>7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Cervical Vertebrae	(N)	6	(f)	7						
Unclassified Vertabrae	Thoracic Vertabrae	(N)	7	(f)	8						
Sacrum	Lumbar Vertabrae	(N)	5	(f)	10						
Coccyx         (N)         (f)           Sternum         (N)         (f)           Ribs         (N)         (f)         >100           Scapula**         Left         (N)         (f)         Right         (N)         (f)           Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         2         Right         (N)         1         (f)         2           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)           Carpals***         Left         (N)         (f)         Right         (N)         (f)	Unclassified Vertabrae	(N)		(f)							
Sternum         (N)         (f)           Ribs         (N)         (f)         >100           Scapula**         Left         (N)         (f)         Right         (N)         (f)           Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         2         Right         (N)         1         (f)         2           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)           Carpals***         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)	Sacrum	(N)		(f)							
Ribs         (N)         (f)         >100           Scapula**         Left         (N)         (f)         Right         (N)         (f)           Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         2         Right         (N)         1         (f)         2           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         Right         (N)         1         (f)           Metacarpals**         Left         (N)         (f)         Right	Соссух	(N)		(f)							
Scapula**         Left         (N)         (f)         Right         (N)         (f)           Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         2         Right         (N)         1         (f)         2           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)           Carpals***         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)<	Sternum	(N)		(f)							
Scapula**         Left         (N)         (f)         Right         (N)         (f)           Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         2         Right         (N)         1         (f)         2           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)           Carpals***         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)<	Ribs	(N)		(f)	>100						
Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         2         Right         (N)         1         (f)         2           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)           Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate**         Left         (N)         (f)         Right         (N)         (f)           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)	Scapula**	Left	(N)		(f)		Right	(N)		(f)	
Humerus         Left         (N)         1         (f)         2         Right         (N)         1         (f)         2           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)           Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate**         Left         (N)         (f)         Right         (N)         (f)           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)		Left	(N)	1					1		
Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)           Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate**         Left         (N)         (f)         Right         (N)         (f)           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left </td <td>Humerus</td> <td>Left</td> <td>(N)</td> <td>1</td> <td></td> <td>2</td> <td></td> <td>(N)</td> <td>1</td> <td></td> <td>2</td>	Humerus	Left	(N)	1		2		(N)	1		2
Ulna         Left         (N)         1         (f)         4         Right         (N)         1         (f)           Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate**         Left         (N)         (f)         Right         (N)         (f)           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)         3           Patella         Left         (N)         1         (f)         Right         (N)         (f)         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left	Radius	Left	(N)	1	(f)		Right	(N)	1		2
Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate**         Left         (N)         (f)         Right         (N)         (f)           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)         3           Patella         Left         (N)         1         (f)         Right         (N)         (f)           Tibia         Left         (N)         1         (f)         3         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)		Left		1		4		(N)	1		
Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate**         Left         (N)         (f)         Right         (N)         (f)           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)         3           Patella         Left         (N)         1         (f)         Right         (N)         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)		Left									
Hand Phalanges**       Left       (N)       (f)       Right       (N)       (f)         Innominate**       Left       (N)       (f)       Right       (N)       (f)         Femur       Left       (N)       1       (f)       Right       (N)       1       (f)       3         Patella       Left       (N)       1       (f)       Right       (N)       (f)         Tibia       Left       (N)       1       (f)       3       Right       (N)       1       (f)         Fibula       Left       (N)       1       (f)       Right       (N)       1       (f)         Tarsals**       Left       (N)       (f)       Right       (N)       (f)         Metatarsals**       Left       (N)       (f)       Right       (N)       (f)	Metacarpals**		(N)				Right	(N)		(f)	
Innominate**	Hand Phalanges**	Left	(N)					(N)		(f)	
Femur         Left         (N)         1         (f)         Right         (N)         1         (f)         3           Patella         Left         (N)         1         (f)         Right         (N)         (f)           Tibia         Left         (N)         1         (f)         3         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)	Innominate**	Left	(N)				Right	(N)			
Patella         Left         (N)         1         (f)         Right         (N)         (f)           Tibia         Left         (N)         1         (f)         3         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)	Femur		. ,	1					1		3
Tibia         Left         (N)         1         (f)         3         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)		Left	(N)	1				. ,			
Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)	Tibia	Left	. ,	1		3		_ , ,	1		
Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)	Fibula		_ , ,	1					1		
Metatarsals** Left (N) (f) Right (N) (f)	Tarsals**									(f)	
		Left						(N)			
	Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)	

<sup>\*</sup> Elements in x fragments

Total (N): 108

JB

<sup>\*\*</sup> Further explaination present

	Comme	nts		
**Further Exp	olainatior	1:		
Maxilla (unsided)	(N)		(f)	4
Scapula (unsided)	(N)		(f)	>40
Carpals (unsided)	(N)	9	(f)	10
Metacarpals (unsided)	(N)	10	(f)	11
Hand Phalanges (unsided)	(N)	13	(f)	15
Innominate	(N)	2	(f)	27
Tarsals (unsided)	(N)	11	(f)	>28
Metatarsals (unsided)	(N)	10	(f)	11
Foot Phalanges (unsided)	(N)	3	(f)	>4

Misc. I	Bags:		
Misc. Cranial	(N)	(f)	19
Misc. Cervical Vertebra	(N)	(f)	1
Misc. Vertebrae	(N)	(f)	>20
Misc. Humeri	(N)	(f)	9
Misc. Long Bone (from arm bag)	(N)	(f)	>30
Misc. Hand	(N)	(f)	>4
Misc. Femur	(N)	(f)	2
Misc. Tibia	(N)	(f)	3
Misc. Lower Limb	(N)	(f)	>10
Misc. Long Bone	(N)	(f)	1
Misc. Foot	(N)	(f)	>20
Misc. Fragments	(N)	(f)	>60
Misc. Bone	(N)	(f)	1
Misc. Dirt and Bone	(N)	(f)	>50

Fragmented cranium

Female (Cotter, 2004), age >50 years according to 1989 inventory.

3 cranial bags have multiple elements on individual fragments. Bagged separately for ease in future reconstruction.

Adult cranial bones found in Burial 2 that could be rearticulated were bagged with parietal(s) and occipital.

Adult cranial bones found in Burial 2 that could not be rearticulated were bagged separately and have astericks (\*) on bags.

C1 vertebrae identified and complete.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

CU 584
BOZ 0009
Altenburg
Burial # 4
Individual N/A
(Individual = N/A if one)

									CU 584	
CRANIAL									BOZ 000	_
Frontal	(N)	1	(f)	4				/	Altenbur	_
Occipital	(N)	1	(f)	2				Burial #		5
Sphenoid	(N)	1	(f)	6				Individu	ıal	N/A
Mandible	(N)	1	(f)	2				(Individu	al = N/A i	f one)
Ethmoid	(N)		(f)							
Vomer	(N)		(f)							
Hyoid	(N)		(f)							
Parietal	Left	(N)	1	(f)	2	Right	(N)	1	(f)	3
Temporal	Left	(N)	1	(f)	2	Right	(N)	1	(f)	
Maxilla	Left	(N)	1	(f)		Right	(N)		(f)	
Nasal	Left	(N)		(f)		Right	(N)		(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Left	(N)		(f)		Right	(N)		(f)	
Palate	Left	(N)		(f)		Right	(N)		(f)	
Inf. Nas. Conhc.	Left	(N)		(f)		Right	(N)		(f)	
Maleus	Left	(N)		(f)		Right	(N)		(f)	
Incus	Left	(N)		(f)		Right	(N)		(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Maxillary Teeth	(N)		(f)							
Mandibular Teeth	(N)	13	(f)	14						
Unclassified Teeth	(N)	11	(f)	13						
Wormian Bones	(N)		(f)							
	•									
POSTCRANIAL										
Cervical Vertebrae	(N)	7	(f)							
Thoracic Vertabrae	(N)	7	(f)	10						
Lumbar Vertabrae	(N)	2	(f)	2						
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)	>7						
Соссух	(N)		(f)							
Sternum	(N)		(f)							
Ribs	(N)		(f)	44						
Scapula	Left	(N)	1	(f)	3	Right	(N)	1	(f)	3
Clavicle	Left	(N)	1	(f)		Right	(N)	1	(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)		Right	(N)	1	(f)	
Carpals**	Left	(N)		(f)		Right	(N)		(f)	
Metacarpals**	Left	(N)		(f)		Right	(N)		(f)	
Hand Phalanges**	Left	(N)		(f)		Right	(N)		(f)	
Innominate	Left	(N)	1	(f)	>10	Right	(N)	1	(f)	>10
Femur	Left	(N)	1	(f)	2	Right	(N)	1	(f)	2
Patella	Left	(N)	1	(f)		Right	(N)	1	(f)	
Tibia	Left	(N)	1	(f)		Right	(N)	1	(f)	
Fibula	Left	(N)	1	(f)	2	Right	(N)	1	(f)	
Tarsals**	Left	(N)	-	(f)	_	Right	(N)	_	(f)	
Metatarsals**	Left	(N)		(f)		Right	(N)		(f)	
Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)	
		1: */		١٠/			1/		1.1	

*	Elements	in	Х	fragme	ents
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\*\* Further explaination present

Total (N): 132

JB

### **Extra Bagging Information**

- Frontal bagged in two bags:

  1. Frontal, Left and Right Parietal (bagged as N=3)
- 2. Frontal (bagged as 3 frags)

- Occipital bagged in two bags: 1. Occipital (bagged as N=1) 2. Occipital, Sphenoid (bagged as N=2)

Sphenoid bagged in two bags:

- Sphenoid (bagged as N=1, 5 frags)
   Occipital, Sphenoid (bagged as N=2)

Mandibular Dentition (bagged as N=12, 13 frags)

Left Parietal bagged in two bags

- 1. Left and Right Parietal (bagged as N=2)
  2. Frontal, Left and Right Parietal (bagged as N=3)

Right Parietal bagged in two bags:

- 1. Left and Right Parietal (bagged as N=2)
- 2. Right Parietal (bagged as N=1)

CU 584 **BOZ 0009** Altenburg Burial # Individual N/A (Individual = N/A if one)

Comments								
**Further Explaination:								
Carpals (unsided)	(N)	7	(f)					
Metacarpals (unsided)	(N)	7	(f)					
Hand Phalanges (unsided)	(N)	18	(f)					
Tarsals (unsided)	(N)	14	(f)	15				
Metatarsals (unsided)	(N)	10	(f)	12				
Foot Phalanges (unsided)	(N)	4	(f)	5				

			•
Misc. Bags:			
Misc. Temporal	(N)	(f)	4
Misc. Maxilla	(N)	(f)	3
Misc. Cranial	(N)	(f)	>25
Misc. Vertebrae	(N)	(f)	>25
Misc. Scapulae	(N)	(f)	3
Misc. Humerus	(N)	(f)	2
Misc. Arm and Pectoral Girdle	(N)	(f)	>50
Misc. Hand	(N)	(f)	>10
Misc. Long Bone (lower)	(N)	(f)	>10
Misc. Fragments	(N)	(f)	>50
Misc. Earth	(N)	(f)	

Fragmented cranium

Female (Cotter, 2004), age at least 30 years according to pdf document "Beard, Burton".

Femoral heads bagged separately

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.
This inventory was checked against the 1988, 1989, and 2004 inventories.
Initial inventory completed by: AJ, JB, DS, EL

CU 584 BOZ 0009 Altenburg Burial # Individual N/A (Individual = N/A if one)

F==									CU 584	
CRANIAL					1				BOZ 000	
Frontal	(N)	1	(f)	3					Altenbur	•
Occipital	(N)	1	(f)	3				Burial #		6
Sphenoid	(N)	1	(f)	4				Individu		N/A
Mandible	(N)	1	(f)	2				(Individu	al = N/A i	f one)
Ethmoid	(N)		(f)							
Vomer	(N)		(f)							
Hyoid	(N)	1	(f)							
Parietal	Left	(N)	1	(f)		Right	(N)	1	(f)	3
Temporal	Left	(N)	1	(f)	4	Right	(N)	1	(f)	2
Maxilla	Left	(N)	1	(f)		Right	(N)	1	(f)	
Nasal	Left	(N)		(f)		Right	(N)		(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Left	(N)		(f)		Right	(N)		(f)	
Palate	Left	(N)		(f)		Right	(N)		(f)	
Inf. Nas. Conhc.	Left	(N)		(f)		Right	(N)		(f)	
Maleus	Left	(N)		(f)		Right	(N)		(f)	
Incus	Left	(N)		(f)		Right	(N)		(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Maxillary Teeth	(N)	17	(f)							
Mandibular Teeth	(N)	15	(f)							
Unclassified Teeth	(N)		(f)							
Wormian Bones	(N)		(f)							
POSTCRANIAL	_									
Cervical Vertebrae	(N)	7	(f)							
Thoracic Vertabrae	(N)	12	(f)							
Lumbar Vertabrae	(N)	5	(f)							
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)	3						
Соссух	(N)		(f)	3						
Sternum	(N)	1	(f)	6						
Ribs	(N)		(f)	48						
Scapula	Left	(N)	1	(f)		Right	(N)	1	(f)	2
Clavicle	Left	(N)	1	(f)		Right	(N)	1	(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)		Right	(N)	1	(f)	
Carpals**	Left	(N)		(f)		Right	(N)		(f)	
Metacarpals	Left	(N)	4	(f)		Right	(N)	5	(f)	
Hand Phalanges**	Left	(N)	4	(f)		Right	(N)	3	(f)	
Innominate	Left	(N)	1	(f)	2	Right	(N)	1	(f)	3
Femur	Left	(N)	1	(f)		Right	(N)	1	(f)	3
Patella	Left	(N)	1	(f)		Right	(N)	1	(f)	
Tibia		_ , ,	1	(f)	2				(f)	
Fibula	Left	(N) (N)	1		3	Right	(N)	1		
Tarsals**	Left Left	. ,	1	(f)		Right	_ , ,	1	(f) (f)	
Metatarsals**		(N) (N)		(f) (f)		Right	(N) (N)		(f)	
	Left	. ,				Right	` '			
Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)	

<sup>\*</sup> Elements in x fragments

Total (N): 173

Digital inventory completed by:

JB

<sup>\*\*</sup> Further explaination present

Comments								
**Further Explaination:								
Finger bone w/ ring in vial	(N)	1	(f)					
(ring in grave goods box)								
Carpals (unsided)	(N)	14	(f)					
Hand Phalanges (unsided)	(N)	26	(f)					
Tarsals (unsided)	(N)	13	(f)					
Metatarsals (unsided)	(N)	10	(f)					
Foot Phalanges (unsided)	(N)	9	(f)	12				

1 oot i nalanges (ansiaea)	(14)	(1)	12
		•	
Miso	c. Bags:		
Misc. Cranial, Wood, Earth	(N)	(f)	>200
Misc. Temporal	(N)	(f)	2
Misc. Vertebrae	(N)	(f)	>50
Misc. Sacrum	(N)	(f)	>20
Misc. Scapula	(N)	(f)	3
Misc. Arm, Clavicle, Scapula	(N)	(f)	>50
Misc. Humeri	(N)	(f)	4
Misc. Pectoral Girdle	(N)	(f)	>50
Misc. Innominate	(N)	(f)	>15
Misc. Long Bone	(N)	(f)	15
Misc. Long Bone (Lower)	(N)	(f)	>75
Misc. Feet	(N)	(f)	>50
Misc. Fragments	(N)	(f)	>100
Misc. Earth	(N)	(f)	>10
Possible Tissue	(N)	(f)	

Fragmented cranium

Female, age 18-25 years (Cotter, 2004).

Right Humerus misplaced in Burial 9 was reassociated with this burial.

Mandible contains 6 molars. Total mandibular dentition = 9.
Upper right first molar labelled "Sample 13" from earlier inventories.

Left Maxilla contains 1 premolar.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

CU 584
BOZ 0009
Altenburg
Burial # 6
Individual N/A
(Individual = N/A if one)

Frontal   (N)		_								CU 584	
Decipital   (N)	CRANIAL										
Individual   N/A   Individual   Individual   Individual   Individual   Individual   Individual   Individua		. ,							/	Altenbur	g
Mandible   (N)	Occipital	(N)		(f)	_				Burial #		7
Ethmoid	Sphenoid	(N)	1	(f)	3				Individu	ıal	N/A
Vomer	Mandible	(N)	1	(f)	3				(Individu	al = N/A i	f one)
Hyold	Ethmoid	(N)	1	. ,							
Parietal	Vomer	. ,		(f)							
Temporal	Hyoid	(N)		(f)							
Maxilla**	Parietal	Left	(N)	1	(f)	4	Right	(N)	1	(f)	2
Nasal		Left	(N)	1		2	Right	(N)	1		
Zygomatic	Maxilla**	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Nasal	Left	(N)	1	(f)		Right	(N)		(f)	
Palate	Zygomatic	Left	(N)	1	(f)		Right	(N)	1		
Inf. Nas. Conhc.	Lacrimal	Left	(N)		(f)		Right	(N)		(f)	
Maleus	Palate	Left	(N)		(f)		Right	(N)		(f)	
Incus	Inf. Nas. Conhc.	Left	(N)		(f)		Right	(N)		(f)	
Incus	Maleus	Left	(N)				Right	(N)			
Maxillary Teeth	Incus	Left	(N)		(f)		Right	(N)		(f)	
Maxillary Teeth   (N)	Stapes	Left	(N)		(f)		Right	(N)		(f)	
Unclassified Teeth   (N)	Maxillary Teeth	(N)		(f)							
Norman Bones   No		(N)									
POSTCRANIAL	Unclassified Teeth	(N)	11	(f)	12						
Cervical Vertebrae   (N)   6   (f)   >40	Wormian Bones	(N)		(f)							
Cervical Vertebrae   (N)   6   (f)   >40											
Thoracic Vertabrae (N) 9 (f) 21 Lumbar Vertabrae (N) 6 (f) 11 Unclassified Vertabrae (N) (f) Sacrum (N) 1 (f) >25 Coccyx (N) (f) 5 Sternum (N) 1 (f) 2 Ribs (N) (f) >16 Scapula Left (N) 1 (f) Right (N) 1 (f) 8 Humerus Left (N) 1 (f) Right (N) 1 (f) 8 Radius Left (N) 1 (f) Right (N) 1 (f) 8 Left (N) 1 (f) Right (N) 1 (f) 8 Radius Left (N) 1 (f) Right (N) 1 (f) 8 Radius Left (N) 1 (f) Right (N) 1 (f) 8 Radius Left (N) 1 (f) Right (N) 1 (f) 9 Left (N) 1 (f) Right (N) 1 (f) 9 Left (N) 1 (f) Right (N) (f) 1 (f) 9 Left (N) (f) Right (N) (f) 1 (f) 9 Left (N) (f) Right (N) (f) 1 (f) 9 Left (N) (f) Right (N) (f) 1	POSTCRANIAL	7									
Lumbar Vertabrae	Cervical Vertebrae	(N)	6	(f)	>40						
Unclassified Vertabrae	Thoracic Vertabrae	(N)	9	(f)	21						
Sacrum	Lumbar Vertabrae	(N)	6	(f)	11						
Coccyx         (N)         (f)           Sternum         (N)         1         (f)         2           Ribs         (N)         (f)         >161         Scapula         Left (N)         1         (f)         Right (N)         1         (f)         3           Clavicle         Left (N)         1         (f)         Right (N)         1         (f)         Humerus         Left (N)         1         (f)         Right (N)         1         (f)         Right (N)         1         (f)         Right (N)         1         (f)         2         Ulna         Left (N)         1         (f)         Right (N)         1         (f)         2         Carpals**         Left (N)         (f)         Right (N)         (f)         Innominate         Left (N)         1         (f)         Right (N)         1         (f)         Patella         Left (N)         1         (f)         Right (N)         1         (f)         Right (N)         1         (f)         Patella         Left (N)         1         (f)         Right (N)         1         (f)         Patella         Left	Unclassified Vertabrae	(N)		(f)							
Sternum	Sacrum	(N)	1	(f)	>25						
Ribs         (N)         (f)         >161           Scapula         Left         (N)         1         (f)         Right         (N)         1         (f)         3           Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         Right         (N)         1         (f)           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Carpals**         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Carpals***         Left         (N)         (f)         Right         (N)         (f)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)         Right         (N)         1         (f)         Right         (N)         1 <td>Соссух</td> <td>(N)</td> <td></td> <td>(f)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Соссух	(N)		(f)							
Scapula         Left         (N)         1         (f)         Right         (N)         1         (f)         3           Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         Right         (N)         1         (f)           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Carpals***         Left         (N)         (f)         Right         (N)         1         (f)         2           Carpals***         Left         (N)         (f)         Right         (N)         (f)         (f)         Right         (N)         (f)         (f)         (f)         Right         (N)         (f)         (f)         Right         (N)         (f)         (f)         Right         (N)         1         (f)         Right         (N)         1         (f)         Right         (N)         1         (f)	Sternum	(N)	1	(f)	2						
Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         Right         (N)         1         (f)           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate         Left         (N)         1         (f)         Right         (N)         1         (f)           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)     <	Ribs	(N)		(f)	>161						
Clavicle         Left         (N)         1         (f)         Right         (N)         1         (f)           Humerus         Left         (N)         1         (f)         Right         (N)         1         (f)           Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate         Left         (N)         1         (f)         Right         (N)         1         (f)           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)     <	Scapula	Left	(N)	1	(f)		Right	(N)	1	(f)	3
Radius         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Ulna         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate         Left         (N)         1         (f)         Right         (N)         1         (f)           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)	Clavicle	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         1         (f)         Right         (N)         1         (f)           Innominate         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f) </td <td>Humerus</td> <td>Left</td> <td>(N)</td> <td>1</td> <td>(f)</td> <td></td> <td>Right</td> <td>(N)</td> <td>1</td> <td>(f)</td> <td></td>	Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)	Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	2
Carpals**         Left         (N)         (f)         Right         (N)         (f)           Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)		Left	(N)	1			Right	(N)	1		2
Metacarpals**         Left         (N)         (f)         Right         (N)         (f)           Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)		Left									
Hand Phalanges**         Left         (N)         (f)         Right         (N)         (f)           Innominate         Left         (N)         1         (f)         Right         (N)         1         (f)         2           Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)           Tibia         Left         (N)         1         (f)         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)			(N)		(f)		Right	(N)		(f)	
Innominate		Left	(N)		(f)			(N)		(f)	
Femur         Left         (N)         1         (f)         Right         (N)         1         (f)           Patella         Left         (N)         1         (f)         Right         (N)         1         (f)           Tibia         Left         (N)         1         (f)         2         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)		Left	(N)	1			Right	(N)	1		2
Patella         Left         (N)         1         (f)         Right         (N)         1         (f)           Tibia         Left         (N)         1         (f)         2         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)	Femur		. ,	1					1		
Tibia         Left         (N)         1         (f)         2         Right         (N)         1         (f)           Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)	Patella	Left	(N)					. ,	1		
Fibula         Left         (N)         1         (f)         Right         (N)         1         (f)           Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)			. ,			2					
Tarsals**         Left         (N)         (f)         Right         (N)         (f)           Metatarsals**         Left         (N)         (f)         Right         (N)         (f)	Fibula		_ , ,	1					1		
Metatarsals** Left (N) (f) Right (N) (f)	Tarsals**										
Foot Phalanges**   Left (N) (f)   Right (N) (f)	Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)	

<sup>\*</sup> Elements in x fragments

\*\* Further explaination present

Total (N): 142

Digital inventory completed by:

JB

# **Extra Bagging Information**

Right Frontal fused to Right Parietal. They have been bagged as: Right Frontal, Right Parietal N=2

Part of Occipital fused to Right Temporal and two Parietal elements. They have been bagged as: Occipital, Temporal (Right), (2) Parietal N=4.

3 Parietal elements fused to other cranial elements. 2 Parietal elements fused to Occipital and Right Temporal and 1 Right Parietal element fused to Right Frontal.

Left Parietal element bagged separately as 1 Left Parietal N=1, 1 frag.

Right Temporal fused to Occipital and 2 Parietal elements. They have been bagged as: Occipital, Right Temporal, (2) Parietal N=4.

Part of Maxilla fused to Right Zygomatic. They have been bagged as: Right Zygomatic and Maxilla N=2.

Have both fibulas in 3 frags. Unsided.

CU 584
BOZ 0009
Altenburg
Burial # 7
Individual N/A
(Individual = N/A if one)

	Comments									
**Further E	**Further Explaination:									
Maxilla	(N)		(f)	10						
Carpals (unsided)	(N)	13	(f)	16						
Metacarpals (unsided)	(N)	9	(f)	10						
Hand Phalanges (unsided)	(N)	20	(f)							
Tarsals (unsided)	(N)	11	(f)	>37						
Metatarsals (unsided)	(N)	13	(f)	15						
Foot Phalanges (unsided)	(N)	1	(f)							
Phalanges (unknown location)	(N)	7	(f)							

M	isc. Bags:		
Misc. Temporal	(N)	(f)	1
Misc. Cranial and Earth	(N)	(f)	45
Misc. Vertebrae	(N)	(f)	>200
Misc. Scapula	(N)	(f)	4
Misc. Radii	(N)	(f)	2
Misc. Arm	(N)	(f)	>100
Misc. Hand and Earth	(N)	(f)	>100
Misc. Innominate	(N)	(f)	>120
Right Femur (distal end)	(N)	(f)	1
Left Femur (distal end)	(N)	(f)	1
Misc. Tibia	(N)	(f)	3
Misc. Long Bone	(N)	(f)	1
Misc. Foot	(N)	(f)	>10
Misc. Frags	(N)	(f)	>100
Misc. Earth and Frags	(N)	(f)	
Misc. Frags	(N)	1.7	_

Fragmented cranium

Male (Cotter, 204), age 42-47 years according to pdf document "Beard, Burton".

Left Parietal and Frontal misplaced in Burial 12 was reassociated with this burial.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

CU 584
BOZ 0009
Altenburg
Burial # 7
Individual N/A
(Individual = N/A if one)

								CU 584		
CRANIAL									BOZ 000	9
Frontal	(N)	1	(f)						Altenbur	g
Occipital	(N)	1	(f)	3				Burial #		8
Sphenoid	(N)	1	(f)	9				Individu	ıal	N/A
Mandible	(N)	1	(f)					(Individu	al = N/A i	-
Ethmoid	(N)		(f)					1	•	
Vomer	(N)		(f)							
Hyoid	(N)		(f)							
Parietal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Temporal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maxilla**	Left	(N)		(f)		Right	(N)		(f)	
Nasal	Left	(N)		(f)		Right	(N)	1	(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)		(f)	
Lacrimal	Left	(N)		(f)		Right	(N)		(f)	
Palate	Left	(N)		(f)		Right	(N)		(f)	
Inf. Nas. Conhc.	Left	(N)		(f)		Right	(N)		(f)	
Maleus	Left	(N)		(f)		Right	(N)		(f)	
Incus	Left	(N)		(f)		Right	(N)		(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Maxillary Teeth	(N)		(f)				•			
Mandibular Teeth	(N)		(f)							
Unclassified Teeth	(N)	3	(f)							
Wormian Bones	(N)		(f)							
POSTCRANIAL										
Cervical Vertebrae	(N)	4	(f)	5						
Thoracic Vertabrae	(N)	5	(f)							
Lumbar Vertabrae	(N)	5	(f)							
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)	10						
Соссух	(N)		(f)							
Sternum	(N)	1	(f)							
Ribs	(N)		(f)	>60						
Scapula	Left	(N)	1	(f)	2	Right	(N)	1	(f)	
Clavicle	Left	(N)	1	(f)		Right	(N)		(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)	3	Right	(N)	1	(f)	2
Carpals**	Left	(N)		(f)		Right	(N)		(f)	
Metacarpals**	Left	(N)		(f)		Right	(N)		(f)	
Hand Phalanges**	Left	(N)		(f)		Right	(N)		(f)	
Innominate	Left	(N)	1	(f)		Right	(N)	1	(f)	
Femur	Left	(N)	1	(f)		Right	(N)	1	(f)	
Patella	Left	(N)	1	(f)		Right	(N)	1	(f)	
Tibia	Left	(N)	1	(f)	2	Right	(N)	1	(f)	2
Fibula	Left	(N)	1	(f)		Right	(N)	1	(f)	2
Tarsals**	Left	(N)		(f)		Right	(N)		(f)	
Metatarsals**	Left	(N)		(f)		Right	(N)		(f)	
Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)	

*	Εl	em	ent	ts	in	Х	fra	agr	ne	'n	ts
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Total (N): 77

JB

<sup>\*\*</sup> Further explaination present

Comments									
**Further Explaination:									
Maxilla (unsided)	(N)		(f)	>15					
Carpals (unsided)	(N)	1	(f)						
Metacarpals (unsided)	(N)	6	(f)	7					
Hand Phalanges (unsided)	(N)	6	(f)						
Tarsals (unsided)	(N)	4	(f)						
Metatarsals (unsided)	(N)	10	(f)						
Foot Phalanges (unsided)	(N)	1	(f)						
Phalanx (unknown location)	(N)	1	(f)						

Misc. Bags:									
Misc. Mandible and Maxilla	(N)	(f)	>25						
Misc. Maxilla	(N)	(f)	5						
Misc. Maxilla (separate bag)	(N)	(f)	>10						
Misc. Cranial	(N)	(f)	>10						
Misc. Vertebrae	(N)	(f)	>18						
Misc. Scapula	(N)	(f)	1						
Misc. Humeri	(N)	(f)	4						
Misc. Long Bone and Pectoral	(N)	(f)	>25						
Misc. Hand	(N)	(f)	>5						
Misc. Innominate	(N)	(f)	>10						
Misc. Innominate (separate)	(N)	(f)	13						
Misc. Innominate and Sacrum	(N)	(f)	>25						
Misc. Femur	(N)	(f)	4						
Misc. Tibia	(N)	(f)	1						
Misc. Fibula	(N)	(f)	4						
Misc. Long Bone (Lower)	(N)	(f)	>50						
Misc. Feet	(N)	(f)	>25						
Ossified Cartilage	(N)	(f)	>11						
Misc. Fragments	(N)	(f)	>100						
Misc. Earth	(N)	(f)	>5						

Complete cranium

Female (Cotter, 2004), age >60 years according to pdf document "Beard, Burton".

1 tooth is bagged separately.

Articulated cranial pieces include: Frontal, Left and Right Parietals, Left and Right Temporals, and Fragments of Occipital.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL CU 584
BOZ 0009
Altenburg
Burial # 8
Individual N/A
(Individual = N/A if one)

	_								CU 584	
CRANIAL									BOZ 000	
Frontal	(N)	1	(f)						Altenbur	_
Occipital	(N)	1	(f)					Burial #		9
Sphenoid	(N)	1	(f)					Individu	ıal	N/A
Mandible	(N)	1	(f)					(Individu	al = N/A i	f one)
Ethmoid	(N)	1	(f)							
Vomer	(N)	1	(f)							
Hyoid	(N)		(f)							
Parietal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Temporal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maxilla	Left	(N)	1	(f)		Right	(N)	1	(f)	
Nasal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Palate	Left	(N)	1	(f)		Right	(N)	1	(f)	
Inf. Nas. Conhc.	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maleus	Left	(N)		(f)		Right	(N)		(f)	
Incus	Left	(N)		(f)		Right	(N)		(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Maxillary Teeth	(N)	3	(f)							
Mandibular Teeth	(N)	5	(f)							
Unclassified Teeth	(N)	16	(f)							
Wormian Bones	(N)		(f)							
POSTCRANIAL										
Cervical Vertebrae	(N)	7	(f)							
Thoracic Vertabrae	(N)	12	(f)	15						
Lumbar Vertabrae	(N)	6	(f)							
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)							
Соссух	(N)		(f)							
Sternum	(N)	1	(f)	6						
Ribs	(N)		(f)	>1000						
Scapula	Left	(N)	1	(f)	4	Right	(N)	1	(f)	
Clavicle	Left	(N)	1	(f)		Right	(N)	1	(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	4
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)		Right	(N)	1	(f)	
Carpals**	Left	(N)		(f)		Right	(N)		(f)	
Metacarpals**	Left	(N)		(f)		Right	(N)		(f)	
Hand Phalanges**	Left	(N)		(f)		Right	(N)		(f)	
Innominate	Left	(N)	1	(f)	2	Right	(N)	1	(f)	2
Femur	Left	(N)	1	(f)		Right	(N)	1	(f)	
Patella	Left	(N)	1	(f)		Right	(N)	1	(f)	
Tibia	Left	(N)	1	(f)		Right	(N)	1	(f)	
Fibula	Left	(N)	1	(f)	2	Right	(N)	1	(f)	
Tarsals**	Left	(N)	_	(f)		Right	(N)	_	(f)	
Metatarsals**	Left	(N)		(f)		Right	(N)		(f)	
Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)	
		١٠/		17		٠٠	١٠/		1.1	

Total (N): 169

Digital inventory completed by:

JB

<sup>\*</sup> Elements in x fragments \*\* Further explaination present

Comments								
**Further Explaination:								
Carpals (unsided)	(N)	11	(f)					
Metacarpals (unsided)	(N)	10	(f)	11				
Hand Phalanges (unsided)	(N)	24	(f)					
Tarsals (unsisded)	(N)	14	(f)					
Metatarsals (unsided)	(N)	9	(f)					
5th Right Metatarsal	(N)	1	(f)	2				
Found in fill above casket								
Foot Phalanges (unsided)	(N)	7	(f)					

Misc. Bags:								
Misc. Vertebrae	(N)	(f)	2					
Misc. Scapula	(N)	(f)	1					
Misc. Long Bone	(N)	(f)	2					
Misc. Fragments	(N)	(f)	>70					
Earth								

Complete cranium

Female, age 30-40 years (Cotter, 2004).

1st right metacarpal noted in Wade 1988 (p. 38) and Rusch 1989 was not present at re-inventory (with extensive osteoarthritis).

Left Scapula misplaced in Burial 7 was reassociated with this burial after confirmation from original inventory.

This burial may be secondary burial per Rusch 1989 (p. 11).

The original bag that contained 5th metatarsal has extra fragment that does not appear to be part of the metatarsal. They are bagged together as originally found.

### Misplaced items:

Humeri misplaced in Burial 7 was reassociated with this burial after confirmation from original inventory.

Right Ulna and Radius misplaced in Burial 3 was reassociated with this burial.

Right Humerus misplaced in this burial (Burial 9) was reassociated with Burial 6.

Right Humerus misplaced in Burial 3 was reassociated with this burial.

All misplaced items are thought to be from class use (likely 2009).

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

CU 584
BOZ 0009
Altenburg
Burial # 9
Individual N/A
(Individual = N/A if one)

								CU 584		
CRANIAL									3OZ 000	
Frontal	(N)	1	(f)						Altenbur	_
Occipital	(N)	1	(f)	4				Burial #		10
Sphenoid	(N)	1	(f)	5				Individu	ıal	N/A
Mandible	(N)	1	(f)	>5				(Individu	al = N/A i	f one)
Ethmoid	(N)		(f)							
Vomer	(N)		(f)							
Hyoid	(N)		(f)							
Parietal	Left	(N)	1	(f)	5	Right	(N)	1	(f)	3
Temporal	Left	(N)	1	(f)	2	Right	(N)	1	(f)	4
Maxilla	Left	(N)	1	(f)	2	Right	(N)	1	(f)	2
Nasal	Left	(N)		(f)		Right	(N)		(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Left	(N)		(f)		Right	(N)		(f)	
Palate	Left	(N)		(f)		Right	(N)		(f)	
Inf. Nas. Conhc.	Left	(N)		(f)		Right	(N)		(f)	
Maleus	Left	(N)		(f)		Right	(N)		(f)	
Incus	Left	(N)		(f)		Right	(N)		(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Maxillary Teeth	(N)	2	(f)				•			
Mandibular Teeth	(N)	26	(f)							
Unclassified Teeth	(N)		(f)							
Wormian Bones	(N)		(f)							
POSTCRANIAL										
Cervical Vertebrae	(N)		(f)							
Thoracic Vertabrae	(N)		(f)							
Lumbar Vertabrae	(N)		(f)							
Unclassified Vertabrae	(N)		(f)	>80						
Sacrum	(N)		(f)							
Соссух	(N)		(f)							
Sternum	(N)		(f)							
Ribs	(N)		(f)	71						
Scapula**	Left	(N)	1	(f)		Right	(N)	1	(f)	
Clavicle	Left	(N)	1	(f)		Right	(N)	1	(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)		Right	(N)	1	(f)	
Carpals	Left	(N)		(f)		Right	(N)		(f)	
Metacarpals	Left	(N)		(f)		Right	(N)		(f)	
Hand Phalanges	Left	(N)		(f)		Right	(N)		(f)	
Innominate	Left	(N)	1	(f)	2	Right	(N)	1	(f)	
Femur	Left	(N)	1	(f)		Right	(N)	1	(f)	
Patella	Left	(N)		(f)		Right	(N)	-	(f)	
Tibia	Left	(N)	1	(f)		Right	(N)	1	(f)	
Fibula**	Left	(N)	1	(f)		Right	(N)	1	(f)	
Tarsals	Left	(N)		(f)		Right	(N)	1	(f)	
Metatarsals	Left	(N)		(f)		Right	(N)		(f)	
Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)	
1 OOL 1 Halaliges	LCIL	(11)		(1)		INIGHT	(11)		(1)	

*	Εl	em	ent	ts	in	Х	fra	agr	ne	'n	ts
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Total (N): 60

Digital inventory completed by:

JB

<sup>\*\*</sup> Further explaination present

Comments							
**Further Explaination:							
Scapula (unsided)	(N)		(f)	5			
Fibula (unsided)	(N)		(f)	5			
Foot Phalanges	(N)	2	(f)	4			

Misc. Bags:								
Misc. Vertebral Column	(N)	(f)	>40					
Misc. Innominate	(N)	(f)	>30					
Misc. Long Bone (lower)	(N)	(f)	>44					
Misc. Metacarpals, Phalanges	(N)	(f)	13					
Misc. Cranial	(N)	(f)	>75					
Misc. Fragments	(N)	(f)	>25					

Fragmented cranium

Aged to 5-9 years based on tooth eruption and cranial size (Cotter, 2004).

Mandibular teeth thought to be labelled correctly, as they are from original bag labelled mandible.

Could not identify sacral vertebrae as described on 2004 inventory. Possibly in Misc. Vertebral Column bag.

2004 inventory only identified one individual with no age approximated. During 2011-2012 reboxing, two individuals were identified. Individual 1 was approximated to be 5-9 years. Individual 2 was approximated to be Less than 1 year. This was determined to be false. Only one individual is present.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

CU 584
BOZ 0009
Altenburg
Burial # 10
Individual N/A
(Individual = N/A if one)

CRANIAL Frontal Occipital Sphenoid Mandible	(N) (N)	1	(f)	_			l B	OZ 0009	)
Occipital Sphenoid	١ /	1	/t/						
Sphenoid	(N)		(1)	2			A	ltenbur	g
	(,	1	(f)	2			Burial #		11
Mandible	(N)	1	(f)	3			Individu	al	N/A
	(N)	1	(f)	3			(Individua	al = N/A if	one)
Ethmoid	(N)		(f)						
Vomer	(N)		(f)						
Hyoid	(N)		(f)						
	Left	(N)		(f)	Right	(N)		(f)	
Temporal**	Left	(N)	1	(f)	Right	(N)	1	(f)	
Maxilla	Left	(N)	1	(f)	Right	(N)	1	(f)	
Nasal	Left	(N)		(f)	Right	(N)		(f)	
Zygomatic	Left	(N)	1	(f)	Right	(N)	1	(f)	
Lacrimal	Left	(N)		(f)	Right	(N)		(f)	
Palate	Left	(N)		(f)	Right	(N)		(f)	
Inf. Nas. Conhc.	Left	(N)		(f)	Right	(N)		(f)	
Maleus	Left	(N)		(f)	Right	(N)		(f)	
Incus	Left	(N)		(f)	Right	(N)		(f)	
	Left	(N)		(f)	Right	(N)		(f)	
Maxillary Teeth	(N)		(f)		•				
Mandibular Teeth	(N)		(f)						
Unclassified Teeth	(N)	1	(f)						
Wormian Bones	(N)		(f)						
POSTCRANIAL									
Cervical Vertebrae	(N)		(f)						
Thoracic Vertabrae	(N)		(f)						
Lumbar Vertabrae	(N)		(f)						
Unclassified Vertabrae	(N)		(f)	70					
Sacrum	(N)	1	(f)	3					
Соссух	(N)		(f)						
Sternum	(N)		(f)						
Ribs	(N)		(f)	31					
Scapula	Left	(N)	1	(f)	Right	(N)	1	(f)	
Clavicle	Left	(N)	1	(f)	Right	(N)	1	(f)	
	Left	(N)	1	(f)	Right	(N)	1	(f)	
Radius**	Left	(N)	1	(f)	Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)	Right	(N)	1	(f)	
Carpals	Left	(N)		(f)	Right	(N)		(f)	
	Left	(N)		(f)	Right	(N)		(f)	
	Left	(N)		(f)	Right	(N)		(f)	
Innominate**	Left	(N)	1	(f)	Right	(N)	1	(f)	
Femur	Left	(N)	1	(f)	Right	(N)	1	(f)	
Patella	Left	(N)		(f)	Right	(N)		(f)	
Tibia	Left	(N)	1	(f)	Right	(N)	1	(f)	
Fibula	Left	(N)	1	(f)	Right	(N)	1	(f)	
Tarsals	Left	(N)		(f)	Right	(N)		(f)	
Metatarsals	Left	(N)		(f)	Right	(N)		(f)	
Foot Phalanges	Left	(N)		(f)	Right	(N)		(f)	

*	Elemen	ts in	x f	fragm	ents
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\*\* Further explaination present

Total	(N):	31
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	Comments		
**Further	r Explaination:		
Temporal (unsided)	(N)	(f)	3
Radius (unsided)	(N)	(f)	1
Ishium (unsided)	(N)	(f)	1

Misc. Bags:								
Misc. Cranial	(N)		(f)	>50				
Phalanx (unknown location)	(N)	1	(f)					
Misc. Fragments	(N)		(f)	>40				

Fragmented cranium

Aged at 7.5-8 fetal lunar months according to pdf document "Beard, Burton".

CU 584 BOZ 0009 Altenburg Burial # 11 Individual N/A (Individual = N/A if one)

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.
This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

									CU 584	
CRANIAL					i				BOZ 000	
Frontal	(N)	1	(f)					/	Altenbur	g
Occipital	(N)	1	(f)	5				Burial #		12
Sphenoid	(N)	1	(f)	4				Individu	ıal	N/A
Mandible	(N)	1	(f)	3				(Individu	al = N/A i	f one)
Ethmoid	(N)		(f)							
Vomer	(N)		(f)							
Hyoid	(N)		(f)							
Parietal**	Left	(N)	1	(f)		Right	(N)	1	(f)	
Temporal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maxilla**	Left	(N)	1	(f)		Right	(N)	1	(f)	
Nasal	Left	(N)		(f)		Right	(N)		(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Left	(N)		(f)		Right	(N)		(f)	
Palate	Left	(N)		(f)		Right	(N)		(f)	
Inf. Nas. Conhc.	Left	(N)		(f)		Right	(N)		(f)	
Maleus	Left	(N)		(f)		Right	(N)		(f)	
Incus	Left	(N)		(f)		Right	(N)		(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Maxillary Teeth	(N)		(f)							
Mandibular Teeth	(N)	12	(f)							
Unclassified Teeth	(N)		(f)							
Wormian Bones	(N)		(f)							
	•				.11					
POSTCRANIAL										
Cervical Vertebrae	(N)	1	(f)							
Thoracic Vertabrae	(N)		(f)							
Lumbar Vertabrae	(N)		(f)							
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)	>30						
Соссух	(N)		(f)							
Sternum	(N)		(f)							
Ribs	(N)		(f)	94						
Scapula	Left	(N)	1	(f)		Right	(N)	1	(f)	
Clavicle	Left	(N)	1	(f)		Right	(N)		(f)	
Humerus	Left	(N)	1	(f)	2	Right	(N)	1	(f)	
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)	2	Right	(N)	1	(f)	3
Carpals**	Left	(N)		(f)		Right	(N)		(f)	
Metacarpals**	Left	(N)		(f)		Right	(N)		(f)	
Hand Phalanges**	Left	(N)		(f)		Right	(N)		(f)	
Innominate	Left	(N)	1	(f)	3	Right	(N)	1	(f)	4
Femur	Left	(N)	1	(f)	3	Right	(N)	1	(f)	3
Patella	Left	(N)	1	(f)	2	Right	(N)	1	(f)	
Tibia	Left	(N)	1	(f)		Right	(N)	1	(f)	4
Fibula**	Left	(N)	1	(f)	2	Right	(N)	1	(f)	2
Tarsals**	Left	(N)		(f)		Right	(N)		(f)	
Metatarsals**	Left	(N)		(f)		Right	(N)		(f)	
Foot Phalanges**	Left	(N)		(f)		Right	(N)		(f)	
<del>-</del>										

*	Εl	em	ent	ts	in	Х	fra	agr	ne	'n	ts
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Total (N): 127

JB

<sup>\*\*</sup> Further explaination present

Comments									
**Further Explaination:									
Parietal (unsided)	(N)		(f)	9					
Maxilla (unsided)	(N)		(f)	10					
Carpals (unsided)	(N)	10	(f)						
Metacarpals (unsided)	(N)	8	(f)	11					
Hand Phalanges (unsided)	(N)	20	(f)	22					
Fibula (unsided)	(N)		(f)	1					
Tarsals (unsided)	(N)	14	(f)						
Metatarsals (unsided)	(N)	10	(f)						
Foot Phalanges (unsided)	(N)	12	(f)						
Vertebrae	(N)	6	(f)	13					

Misc.	Bags:			
Misc. Cranial	(N)		(f)	>100
Misc. Vertebrae	(N)		(f)	17
Misc. Scapula	(N)		(f)	6
Misc. Pectoral Girdle	(N)		(f)	>100
Misc. Humerus	(N)		(f)	3
Misc. Arm and Earth	(N)		(f)	>10
Misc. Hand and Earth	(N)		(f)	>10
Right 4th Phalanx	(N)	1	(f)	
Misc. Innominate	(N)		(f)	>25
Misc. Long Bone (lower)	(N)		(f)	>20
Misc. Feet and Earth	(N)		(f)	>3
Misc. Bone from Disturbances	(N)		(f)	>25
Misc. Fragments	(N)		(f)	>6
Phalanx (unknown location)	(N)	1	(f)	
with cloth				
Hair on skull (bag)	(N)		(f)	

Female (Cotter, 2004), age 42-47 years according to pdf document "Beard, Burton".

Frontal/Left Parietal misplaced in this burial (Burial 12) was reassociated with Burial 7.

Misc. Fibula proximal end bagged separately.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1988, 1989, and 2004 inventories. Initial inventory completed by: AJ, JB, DS, EL

CU 584
BOZ 0009
Altenburg
Burial # 12
Individual N/A
(Individual = N/A if one)

									CU 583	
CRANIAL					_			6	3OZ 004	8
Frontal	(N)	1	(f)						Stolz	
Occipital	(N)	1	(f)					Burial #		1
Sphenoid	(N)	1	(f)	5				Individu	ıal	N/A
Mandible	(N)	1	(f)					(Individu	al = N/A i	f one)
Ethmoid	(N)	1	(f)							
Vomer	(N)	1	(f)							
Hyoid	(N)	1	(f)							
Parietal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Temporal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maxilla	Left	(N)	1	(f)		Right	(N)	1	(f)	
Nasal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Palate	Left	(N)	1	(f)		Right	(N)	1	(f)	
Inf. Nas. Conhc.	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maleus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Incus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Stapes	Left	(N)	1	(f)		Right	(N)		(f)	
Mandibular Teeth	(N)	3	(f)							
Maxillary Teeth	(N)	1	(f)							
Unclassified Teeth	(N)		(f)							
Wormian Bones	(N)		(f)							
POSTCRANIAL										
Cervical Vertebrae	(N)	7	(f)							
Thoracic Vertabrae**	(N)	12	(f)							
Lumbar Vertabrae	(N)	5	(f)							
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)	5						
Соссух	(N)	1	(f)							
Sternum	(N)	1	(f)	>3						
Ribs	(N)	24	(f)							
Scapula	Left	(N)	1	(f)	2	Right	(N)	1	(f)	3
Clavicle	Left	(N)	1	(f)		Right	(N)	1	(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)		Right	(N)	1	(f)	
Carpals	Left	(N)	8	(f)		Right	(N)	7	(f)	
Metacarpals	Left	(N)	5	(f)		Right	(N)	5	(f)	
Hand Phalanges	Left	(N)	13	(f)		Right	(N)	14	(f)	
Innominate	Left	(N)	1	(f)	>2	Right	(N)	1	(f)	>4
Femur	Left	(N)	1	(f)		Right	(N)	1	(f)	
Patella	Left	(N)	1	(f)		Right	(N)	1	(f)	
Tibia	Left	(N)	1	(f)		Right	(N)	1	(f)	
Fibula	Left	(N)	1	(f)		Right	(N)	1	(f)	
Tarsals	Left	(N)	7	(f)		Right	(N)	6	(f)	7
Metatarsals	Left	(N)	5	(f)		Right	(N)	4	(f)	
Foot Phalanges	Left	(N)	3	(f)		Right	(N)	2	(f)	

*	Elements	in	Х	fragmer	nts
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\*\* Further explaination present

Total (N): 182

JB

Comments						
**	Further Explaination:					
	(N)	(f)				
	(N)	(f)				
	(N)	(f)				
	(N)	(f)				
	(N)	(f)				
	(N)	(f)				
	(N)	(f)				
	(N)	(f)				

_										
Misc. Bags:										
(N)	(f)	>25								
(N)	(f)	>25								
(N)	(f)	>10								
(N)	(f)	>10								
(N)	(f)	>20								
(N)	(f)	>50								
(N)	(f)	>50								
(N)	(f)	>10								
(N)	(f)	>10								
(N)	(f)	>20								
(N)	(f)	>20								
(N)	(f)									
(N)	(f)									
	(N) (N) (N) (N) (N) (N) (N) (N) (N) (N)	(N) (f) (f) (N) (N) (f) (N) (N) (N) (N) (N) (N) (N) (N) (N) (N								

Female, age 65-75+ years according to Meer 1990

8th Thoracic vertebra bagged separately. Manubrium bagged separately.

Ribs bagged separately.

Hyoid and Ossified loryngeal cartilage were unable to be separated into individual bags.

Right Maleus and Incus were mislabeled on original bag. Confirmed by inventory records from 1989.

Discrepancies between 1989 inventory and 2013 inventory: Foot phalanges (left) N=3, 1989 N=4 Could not locate seismoid bones for carpals and tarsals in 2013.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1989 inventories Initial inventory completed by: AJ, JB, DS, EL CU 583
BOZ 0048
Stolz
Burial # 1
Individual N/A
(Individual = N/A if one)

F							CU 583			
CRANIAL							6	BOZ 0048		
Frontal	(N)	1	(f)					Stolz		
Occipital	(N)	1	(f)				Burial #		2	
Sphenoid	(N)	1	(f)				Individu	ıal	N/A	
Mandible	(N)	1	(f)				(Individu	al = N/A	if one)	
Ethmoid	(N)	1	(f)							
Vomer	(N)	1	(f)							
Hyoid	(N)	1	(f)							
Parietal	Left	(N)	1	(f)	Right	(N)	1	(f)		
Temporal	Left	(N)	1	(f)	Right	(N)	1	(f)		
Maxilla	Left	(N)	1	(f)	Right	(N)	1	(f)		
Nasal	Left	(N)	1	(f)	Right	(N)	1	(f)		
Zygomatic	Left	(N)	1	(f)	Right	(N)	1	(f)		
Lacrimal	Left	(N)	1	(f)	Right	(N)	1	(f)		
Palate	Left	(N)	1	(f)	Right	(N)	1	(f)		
Inf. Nas. Conhc.	Left	(N)	1	(f)	Right	(N)	1	(f)		
Maleus	Left	(N)		(f)	Right	(N)		(f)		
Incus	Left	(N)		(f)	Right	(N)		(f)		
Stapes	Left	(N)		(f)	Right	(N)		(f)		
Mandibular Teeth	(N)	7	(f)			•				
Maxillary Teeth	(N)	8	(f)							
Unclassified Teeth	(N)		(f)							
Wormian Bones	(N)		(f)							
POSTCRANIAL										
Cervical Vertebrae	(N)	7	(f)							
Thoracic Vertabrae**	(N)	12	(f)							
Lumbar Vertabrae	(N)	5	(f)							
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)							
Соссух	(N)		(f)							
Sternum	(N)	1	(f)	3						
Ribs	(N)	24	(f)	46						
Scapula	Left	(N)	1	(f)	Right	(N)	1	(f)		
Clavicle	Left	(N)	1	(f)	Right	(N)	1	(f)		
Humerus	Left	(N)	1	(f)	Right	(N)	1	(f)		
Radius	Left	(N)	1	(f)	Right	(N)	1	(f)		
Ulna	Left	(N)	1	(f)	Right	(N)	1	(f)		
Carpals	Left	(N)	7	(f)	Right	(N)	8	(f)		
Metacarpals	Left	(N)	5	(f)	Right	(N)	5	(f)		
Hand Phalanges	Left	(N)	13	(f)	Right	(N)	11	(f)		
Innominate	Left	(N)	1	(f)	Right	(N)	1	(f)		
Femur	Left	(N)	1	(f)	Right	(N)	1	(f)		
Patella	Left	(N)	1	(f)	Right	(N)	1	(f)		
Tibia	Left	(N)	1	(f)	Right	(N)	1	(f)		
Fibula	Left	(N)	1	(f)	Right	(N)	1	(f)	-	
Tarsals	Left	(N)	7	(f)	Right	(N)	6	(f)	_	
Metatarsals	Left	(N)	5	(f)	Right	(N)	4	(f)		
Foot Phalanges	Left	(N)	14	(f)	Right	(N)	1	(f)		
i oot riiaiaiiges	Leit	(14)	14	(1)	rigiit	(11)	1	(1)		

<sup>\*</sup> Elements in x fragments

Total (N): 198

Digital inventory completed by:

JB

<sup>\*\*</sup> Further explaination present

	Comments	
**	Further Explaination:	
	(N)	(f)

Misc.	Bags:			Misc. Bags:									
Misc. General debris	(N)		(f)	>50									
associated with skull													
Misc. Vertebra	(N)		(f)	>10									
Misc. Soil and bone fragments	(N)		(f)	>3									
Misc. Fragments associated	(N)		(f)	>12									
with leg (left)													
Misc. Leg (right)	(N)		(f)	>10									
Misc. Fragments associated	(N)		(f)	>10									
with femur (right)													
Misc. Unidentified bone	(N)		(f)	>7									
fragments													
Misc. Arm (right)	(N)		(f)	>10									
Sesamoid bones foot (left)	(N)	2	(f)										
Sesamoid bones foot (right)	(N)	2	(f)										

Notes:

Male, age 55-65+ years according to Meer 1990

Ossified soft tissue tumor = 1 box

Tissue found with cranial cavity = 1 box

Ossified cartilage (thyroid and acicoid) = 1 box

Meer notes N=1 Medial first cuneiform (right) and N=1 First metatarsal (right). Not found in 2013 re-boxing.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1989 inventories Initial inventory completed by: AJ, JB, DS, EL

CU 583
BOZ 0048
Stolz
Burial # 2
Individual N/A
(Individual = N/A if one)

									CU 583	
CRANIAL					i			E	3OZ 004	8
Frontal	(N)	1	(f)						Stolz	
Occipital	(N)	1	(f)	4				Burial #		3
Sphenoid	(N)	1	(f)					Individu	al	N/A
Mandible	(N)	1	1					(Individu	al = N/A i	f one)
Ethmoid	(N)	1	(f)	2				·		
Vomer	(N)	1	(f)							
Hyoid	(N)		(f)							
Parietal**	Left	(N)		(f)		Right	(N)		(f)	
Temporal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maxilla	Left	(N)	1	(f)		Right	(N)	1	(f)	
Nasal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Palate	Left	(N)	1	(f)		Right	(N)	1	(f)	
Inf. Nas. Conhc.	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maleus**	Left	(N)		(f)		Right	(N)		(f)	
Incus**	Left	(N)		(f)		Right	(N)		(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Mandibular Teeth	(N)	10	(f)							
Maxillary Teeth	(N)	10	(f)							
Unclassified Teeth	(N)		(f)							
Wormian Bones	(N)		(f)							
					U					
POSTCRANIAL										
Cervical Vertebrae	(N)	7	(f)	21						
Thoracic Vertabrae**	(N)	12	(f)	36						
Lumbar Vertabrae	(N)	5	(f)	15						
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)	12						
Соссух	(N)		(f)							
Sternum	(N)	1	(f)							
Ribs	(N)	24	(f)							
Scapula	Left	(N)	1	(f)	2	Right	(N)	1	(f)	2
Clavicle	Left	(N)	1	(f)		Right	(N)	1	(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Radius	Left	(N)	1	(f)		Right	(N)	1	(f)	
Ulna	Left	(N)	1	(f)		Right	(N)		(f)	
Carpals	Left	(N)	2	(f)		Right	(N)	2	(f)	
Metacarpals	Left	(N)	5	(f)		Right	(N)	5	(f)	
Hand Phalanges	Left	(N)	12	(f)		Right	(N)	10	(f)	
Innominate	Left	(N)	1	(f)	3	Right	(N)	1	(f)	2
Femur	Left	(N)	1	(f)	2	Right	(N)	1	(f)	2
Patella	Left	(N)		(f)		Right	(N)		(f)	
Tibia	Left	(N)	1	(f)	2	Right	(N)	1	(f)	
Fibula	Left	(N)	1	(f)		Right	(N)	1	(f)	
Tarsals	Left	(N)		(f)		Right	(N)		(f)	
Metatarsals	Left	(N)	4	(f)		Right	(N)	5	(f)	
Foot Phalanges	Left	(N)	2	(f)		Right	(N)	3	(f)	
<del>-</del>										

*	Elements	in	Х	fragme	ents
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\*\* Further explaination present

Total (N): 161

Digital inventory completed by:

JB

	Commen	its								
**Further Explaination:										
Maleus (unsided)	(N)	1	(f)							
Incus (unsided)	(N)	1	(f)							
Parietals (unsided)	(N)	2	(f)	3						
	(N)		(f)							
	(N)		(f)							
	(N)		(f)							
	(N)		(f)							
	(N)		(f)							

Misc. Bags:								
Misc. Cranial vault	(N)	(f)	>50					
Misc. Fragments	(N)	(f)						

Notes:

Age 9-12 fetal lunar months according to Meer 1990

Cervical vertebrae bagged in 3 bags.

Distal femur (right and left) and proximal tibia epiphyses bagged together (as per original bagging).

CU 583
BOZ 0048
Stolz
Burial # 3
Individual N/A
(Individual = N/A if one)

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.

This inventory was checked against the 1989 inventories Initial inventory completed by: AJ, JB, DS, EL

	_								CU 583	
CRANIAL								1	3OZ 004	3
Frontal	(N)	1	(f)						Stolz	
Occipital	(N)	1	(f)					Burial #		4
Sphenoid	(N)	1	(f)					Individu	ıal	N/A
Mandible	(N)		(f)					(Individu	al = N/A i	f one)
Ethmoid	(N)	1	(f)							
Vomer	(N)	1	(f)							
Hyoid	(N)		(f)							
Parietal	Left	(N)	1	(f)	2	Right	(N)	1	(f)	
Temporal	Left	(N)		(f)		Right	(N)		(f)	
Maxilla	Left	(N)	1	(f)		Right	(N)	1	(f)	
Nasal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)	1	(f)	
Lacrimal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Palate	Left	(N)	1	(f)		Right	(N)	1	(f)	
Inf. Nas. Conhc.	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maleus	Left	(N)		(f)		Right	(N)		(f)	
Incus	Left	(N)		(f)		Right	(N)		(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Mandibular Teeth	(N)		(f)				•			
Maxillary Teeth	(N)	13	(f)							
Unclassified Teeth	(N)		(f)							
Wormian Bones	(N)		(f)							
	. ,		, ,							
POSTCRANIAL										
Cervical Vertebrae	(N)		(f)							
Thoracic Vertabrae	(N)	4	(f)							
Lumbar Vertabrae	(N)		(f)							
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)	1	(f)							
Соссух	(N)		(f)							
Sternum	(N)		(f)							
Ribs	(N)	8	(f)							
Scapula	Left	(N)	1	(f)	2	Right	(N)		(f)	
Clavicle	Left	(N)	1	(f)		Right	(N)		(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Radius	Left	(N)		(f)		Right	(N)		(f)	
Ulna	Left	(N)		(f)		Right	(N)		(f)	
Carpals	Left	(N)		(f)		Right	(N)		(f)	
Metacarpals**	Left	(N)		(f)		Right	(N)		(f)	
Hand Phalanges**	Left	(N)		(f)		Right	(N)		(f)	
Innominate	Left	(N)		(f)		Right	(N)	1	(f)	
Femur	Left	(N)	1	(f)		Right	(N)		(f)	
Patella	Left	(N)	_	(f)		Right	(N)		(f)	
Tibia	Left	(N)		(f)		Right	(N)		(f)	
Fibula	Left	(N)		(f)		Right	(N)		(f)	
Tarsals	Left	(N)		(f)		Right	(N)		(f)	
Metatarsals	Left	(N)		(f)		Right	(N)		(f)	
Foot Phalanges	Left	(N)		(f)		Right	(N)		(f)	
. oot i maranges	Leit	(.*/		1.1			('*/		11/	

*	Elemen	ts in	x f	fragm	ents
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\*\* Further explaination present

Total (N): 56

Digital inventory completed by:

JB

	Commer			
**Furthe	r Explaination	:		
Metacarpals (unsided)	(N)	3	(f)	
Hand phalanx (unsided)	(N)	1	(f)	
	(N)		(f)	

	Misc. Bags:			
Misc. Cranial	(N)		(f)	3
Misc. Epiphysis	(N)	1	(f)	
Misc. Dirt	(N)		(f)	>25
Misc. Fragments	(N)		(f)	>5
	(N)		(f)	
	(N)		(f)	
	(N)		(f)	
	(NI)		(f)	

Age 5.5-6.5 years according to Meer 1990

Glue present on cranium.

Lacrimals and Inf. Nas. Conch. bagged separate from cranium.

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.
This inventory was checked against the 1989 inventories Initial inventory completed by: AJ, JB, DS, EL

CU 583 BOZ 0048 Stolz Burial # 4 Individual N/A (Individual = N/A if one)

							CU 583	3
CRANIAL							BOZ 004	18
Frontal	(N)		(f)				Stolz	
Occipital	(N)		(f)				Burial #	5
Sphenoid	(N)		(f)				Individual	N/A
Mandible	(N)		(f)				(Individual = N/A	if one)
Ethmoid	(N)		(f)					,
Vomer	(N)		(f)					
Hyoid	(N)		(f)					
Parietal	Left	(N)		(f)	Right	(N)	(f)	
Temporal	Left	(N)		(f)	Right	(N)	(f)	
Maxilla	Left	(N)		(f)	Right	(N)	(f)	
Nasal	Left	(N)		(f)	Right	(N)	(f)	
Zygomatic	Left	(N)		(f)	Right	(N)	(f)	
Lacrimal	Left	(N)		(f)	Right	(N)	(f)	
Palate	Left	(N)		(f)	Right	(N)	(f)	
Inf. Nas. Conhc.	Left	(N)		(f)	Right	(N)	(f)	
Maleus	Left	(N)		(f)	Right	(N)	(f)	
Incus	Left	(N)		(f)	Right	(N)	(f)	
Stapes	Left	(N)		(f)	Right	(N)	(f)	
Mandibular Teeth	(N)		(f)		1 0 -		( )	
Maxillary Teeth	(N)		(f)					
Unclassified Teeth	(N)		(f)					
Wormian Bones	(N)		(f)					
	. ,							
POSTCRANIAL								
Cervical Vertebrae	(N)		(f)					
Thoracic Vertabrae	(N)		(f)					
Lumbar Vertabrae	(N)		(f)					
Unclassified Vertabrae	(N)		(f)					
Sacrum	(N)		(f)					
Соссух	(N)		(f)					
Sternum	(N)		(f)					
Ribs	(N)		(f)					
Scapula	Left	(N)	. ,	(f)	Right	(N)	(f)	
Clavicle	Left	(N)		(f)	Right	(N)	(f)	
Humerus	Left	(N)	1	(f)	Right	(N)	(f)	
Radius	Left	(N)		(f)	Right	(N)	1 (f)	
Ulna	Left	(N)		(f)	Right	(N)	(f)	
Carpals	Left	(N)		(f)	Right	(N)	(f)	
Metacarpals	Left	(N)		(f)	Right	(N)	(f)	
Hand Phalanges	Left	(N)		(f)	Right	(N)	(f)	
Innominate	Left	(N)		(f)	Right	(N)	(f)	
Femur	Left	(N)		(f)	Right	(N)	(f)	
Patella	Left	(N)		(f)	Right	(N)	(f)	
Tibia	Left	(N)		(f)	Right	(N)	(f)	
Fibula	Left	(N)	1	(f)	Right	(N)	(f)	
Tarsals	Left	(N)		(f)	Right	(N)	(f)	
Metatarsals	Left	(N)		(f)	Right	(N)	(f)	
Foot Phalanges	Left	(N)		(f)	Right	(N)	(f)	
	_0.0	۱۰۳/		۱٠/	1119111	1' 1/	\''/	

*	Εl	em	ent	ts	in	Х	fra	agr	ne	'n	ts
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Total (N): 3

Digital inventory completed by:

JB

<sup>\*\*</sup> Further explaination present

	Comments	
**Further Ex	xplaination:	
	(N)	(f)
	•	

CU 583				
BOZ 0048	8			
Stolz				
Burial #	5			
Individual	N/A			
(Individual = N/A i	f one)			
(Iliulviuuai = N/A i	i one)			

Misc. Bags:	
(N)	(f)

Age 2.5-3.5 years according to Meer 1990

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.
This inventory was checked against the 1989 inventories Initial inventory completed by: AJ, JB, DS, EL

									CU 583	
CRANIAL					i			1	3OZ 004	8
Frontal	(N)	1	(f)						Stolz	
Occipital	(N)	1	(f)					Burial #		6
Sphenoid	(N)	1	(f)					Individu	ıal	N/A
Mandible	(N)	1	(f)					(Individu	al = N/A i	f one)
Ethmoid	(N)	1	(f)							
Vomer	(N)	1	(f)							
Hyoid	(N)		(f)							
Parietal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Temporal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Maxilla	Left	(N)		(f)		Right	(N)		(f)	
Nasal	Left	(N)	1	(f)		Right	(N)	1	(f)	
Zygomatic	Left	(N)	1	(f)		Right	(N)		(f)	
Lacrimal	Left	(N)	1	(f)		Right	(N)		(f)	
Palate	Left	(N)		(f)		Right	(N)		(f)	
Inf. Nas. Conhc.	Left	(N)	1	(f)		Right	(N)		(f)	
Maleus	Left	(N)		(f)		Right	(N)	1	(f)	
Incus	Left	(N)		(f)		Right	(N)	1	(f)	
Stapes	Left	(N)		(f)		Right	(N)		(f)	
Mandibular Teeth	(N)	15	(f)							
Maxillary Teeth	(N)		(f)							
Unclassified Teeth	(N)		(f)							
Wormian Bones	(N)		(f)							
					ļl					
POSTCRANIAL										
Cervical Vertebrae	(N)		(f)							
Thoracic Vertabrae	(N)		(f)							
Lumbar Vertabrae	(N)		(f)							
Unclassified Vertabrae	(N)		(f)							
Sacrum	(N)		(f)							
Соссух	(N)		(f)							
Sternum	(N)	1	(f)	2						
Ribs	(N)	19	(f)							
Scapula	Left	(N)	1	(f)	4	Right	(N)	1	(f)	
Clavicle	Left	(N)		(f)		Right	(N)	1	(f)	
Humerus	Left	(N)	1	(f)		Right	(N)	1	(f)	
Radius	Left	(N)		(f)		Right	(N)	1	(f)	
Ulna	Left	(N)		(f)		Right	(N)	1	(f)	
Carpals	Left	(N)		(f)		Right	(N)		(f)	
Metacarpals	Left	(N)		(f)		Right	(N)	2	(f)	
Hand Phalanges	Left	(N)		(f)		Right	(N)	2	(f)	
Innominate	Left	(N)	1	(f)		Right	(N)	1	(f)	
Femur	Left	(N)	1	(f)		Right	(N)	1	(f)	
Patella	Left	(N)	1	(f)		Right	(N)		(f)	
Tibia	Left	(N)	1	(f)		Right	(N)		(f)	
Fibula	Left	(N)	1	(f)		Right	(N)		(f)	
Tarsals	Left	(N)	1	(f)		Right	(N)		(f)	
Metatarsals	Left	(N)	5	(f)		Right	(N)		(f)	
Foot Phalanges	Left	(N)	10	(f)		Right	(N)		(f)	
		11		1.1			1/		٧٠/	

*	Elements	in	Х	fragm	ents
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\*\* Further explaination present

Total	(N):	86
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	Comments		
*	*Further Explaination:		
	(N)	(f)	1
	(N)	(f)	

	-						
Mis	Misc. Bags:						
Misc. Cranial	(N)	(f)	>2				
Misc. Scapulae	(N)	(f)	2				
Misc. Wood and bone frags	(N)	(f)	>10				
associated with Sternum							
Misc. Fragments	(N)	(f)	>5				
	(N)	(f)					
	(N)	(f)					
	(N)	(f)					

Male, age 30-34 years according to Meer 1990

Tarsal (left, cuneiform 3) bagged with metatarsals (left).

Discrepancy between 1989 inventory and original bag for foot elements.

BOZ 0048 Stolz Burial # 6 Individual N/A (Individual = N/A if one)

CU 583

One element may have fragments in multiple bags. Fragment totals listed encompass all bags. This inventory was checked against the 1989 inventories

Initial inventory completed by: AJ, JB, DS, EL

							CU 583	3
CRANIAL							BOZ 004	18
Frontal	(N)		(f)				Stolz	
Occipital	(N)		(f)				Burial #	7
Sphenoid	(N)		(f)				Individual	N/A
Mandible	(N)		(f)				(Individual = N/A	if one)
Ethmoid	(N)		(f)					,
Vomer	(N)		(f)					
Hyoid	(N)		(f)					
Parietal	Left	(N)		(f)	Right	(N)	(f)	
Temporal	Left	(N)		(f)	Right	(N)	(f)	
Maxilla	Left	(N)		(f)	Right	(N)	(f)	
Nasal	Left	(N)		(f)	Right	(N)	(f)	
Zygomatic	Left	(N)		(f)	Right	(N)	(f)	
Lacrimal	Left	(N)		(f)	Right	(N)	(f)	
Palate	Left	(N)		(f)	Right	(N)	(f)	
Inf. Nas. Conhc.	Left	(N)		(f)	Right	(N)	(f)	
Maleus	Left	(N)		(f)	Right	(N)	(f)	
Incus	Left	(N)		(f)	Right	(N)	(f)	
Stapes	Left	(N)		(f)	Right	(N)	(f)	
Mandibular Teeth	(N)	` '	(f)	` '			, ,	
Maxillary Teeth	(N)		(f)					
Unclassified Teeth	(N)		(f)					
Wormian Bones	(N)		(f)					
POSTCRANIAL								
Cervical Vertebrae	(N)		(f)					
Thoracic Vertabrae	(N)	4	(f)					
Lumbar Vertabrae	(N)		(f)					
Unclassified Vertabrae	(N)	1	(f)					
Sacrum	(N)	1	(f)					
Соссух	(N)		(f)					
Sternum	(N)		(f)					
Ribs	(N)	2	(f)					
Scapula	Left	(N)	1	(f)	Right	(N)	(f)	
Clavicle	Left	(N)		(f)	Right	(N)	(f)	
Humerus	Left	(N)		(f)	Right	(N)	(f)	
Radius	Left	(N)	1	(f)	Right	(N)	1 (f)	
Ulna	Left	(N)		(f)	Right	(N)	1 (f)	
Carpals	Left	(N)		(f)	Right	(N)	(f)	
Metacarpals	Left	(N)		(f)	Right	(N)	(f)	
Hand Phalanges	Left	(N)		(f)	Right	(N)	(f)	
Innominate	Left	(N)	1	(f)	Right	(N)	1 (f)	
Femur	Left	(N)		(f)	Right	(N)	1 (f)	
Patella	Left	(N)		(f)	Right	(N)	(f)	
Tibia	Left	(N)		(f)	Right	(N)	(f)	
Fibula	Left	(N)		(f)	Right	(N)	(f)	
Tarsals	Left	(N)		(f)	Right	(N)	(f)	
Metatarsals	Left	(N)		(f)	Right	(N)	(f)	
Foot Phalanges	Left	(N)		(f)	Right	(N)	(f)	

*	Elemen	ts in	x f	fragm	ents
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\*\* Further explaination present

Total	(N):	15
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	Comments		
*	*Further Explaination:		
	(N)	(f)	
	•		_

CU 583					
BOZ 0048	BOZ 0048				
Stolz	Stolz				
Burial #	Burial # 7				
Individual N/A					
(Individual = N/A if one)					

Misc. Bags:	
(N)	(f)

Notes:

Male, age 50-65 years according to Meer 1990

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.
This inventory was checked against the 1989 inventories Initial inventory completed by: AJ, JB, DS, EL

							CU 58	33
CRANIAL							BOZ 0048	
Frontal	(N)		(f)				Stol	Z
Occipital	(N)		(f)				Burial #	8
Sphenoid	(N)		(f)				Individual	N/A
Mandible	(N)		(f)				(Individual = N/	A if one)
Ethmoid	(N)		(f)					
Vomer	(N)		(f)					
Hyoid	(N)		(f)					
Parietal	Left	(N)	1	(f)	Right	(N)	(f)	
Temporal	Left	(N)		(f)	Right	(N)	(f)	
Maxilla	Left	(N)		(f)	Right	(N)	(f)	
Nasal	Left	(N)		(f)	Right	(N)	(f)	
Zygomatic	Left	(N)		(f)	Right		(f)	
Lacrimal	Left	(N)		(f)	Right		(f)	
Palate	Left	(N)		(f)	Right		(f)	
Inf. Nas. Conhc.	Left	(N)		(f)	Right		(f)	
Maleus	Left	(N)		(f)	Right	(N)	(f)	
Incus	Left	(N)		(f)	Right	(N)	(f)	
Stapes	Left	(N)		(f)	Right	(N)	(f)	
Mandibular Teeth	(N)		(f)			•		
Maxillary Teeth	(N)		(f)					
Unclassified Teeth	(N)		(f)					
Wormian Bones	(N)		(f)					
POSTCRANIAL								
Cervical Vertebrae	(N)	1	(f)					
Thoracic Vertabrae	(N)	4	(f)					
Lumbar Vertabrae	(N)		(f)					
Unclassified Vertabrae	(N)		(f)					
Sacrum	(N)		(f)					
Соссух	(N)		(f)					
Sternum	(N)	1	(f)					
Ribs	(N)	15	(f)					
Scapula	Left	(N)		(f)	Right	(N)	1 (f)	
Clavicle	Left	(N)	1	(f)	Right	(N)	1 (f)	
Humerus	Left	(N)	1	(f)	Right	(N)	1 (f)	
Radius	Left	(N)	1	(f)	Right	(N)	(f)	
Ulna	Left	(N)		(f)	Right	(N)	(f)	
Carpals	Left	(N)		(f)	Right	(N)	(f)	
Metacarpals	Left	(N)		(f)	Right	(N)	(f)	
Hand Phalanges	Left	(N)		(f)	Right	. ,	(f)	
Innominate	Left	(N)	1	(f)	Right	(N)	(f)	
Femur	Left	(N)		(f)	Right	. ,	(f)	
Patella	Left	(N)		(f)	Right	(N)	(f)	
Tibia	Left	(N)	1	(f)	Right	. ,	(f)	
Fibula	Left	(N)		(f)	Right	(N)	(f)	
Tarsals	Left	(N)		(f)	Right		(f)	
Metatarsals	Left	(N)		(f)	Right		(f)	
Foot Phalanges	Left	(N)		(f)	Right		(f)	

*	Εl	em	ent	ts	in	Х	fra	agr	ne	'n	ts
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Total	(N):	30
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JB

<sup>\*\*</sup> Further explaination present

Comments				
**F	urther Explaination:			
	(N)	(f)		

	•		
	Misc. Bags:		
Misc. Fragments	(N)	(f)	>10
	(N)	(f)	

Female, age 40-58 years according to Meer 1990

Left parietal likely has taphonomic changes

Parietal is glued

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.
This inventory was checked against the 1989 inventories Initial inventory completed by: AJ, JB, DS, EL

CU 583 BOZ 0048 Stolz Burial # 8 Individual N/A (Individual = N/A if one)

							CU 583	
CRANIAL							BOZ 0048	
Frontal	(N)	1	(f)				St	tolz
Occipital	(N)	1	(f)				Burial #	9
Sphenoid	(N)		(f)				Individual	N/A
Mandible	(N)		(f)				(Individual =	N/A if one)
Ethmoid	(N)		(f)				·	
Vomer	(N)		(f)					
Hyoid	(N)		(f)					
Parietal	Left	(N)	1	(f)	Righ			(f)
Temporal	Left	(N)		(f)	Righ	t (N)		(f)
Maxilla	Left	(N)		(f)	Righ	t (N)		(f)
Nasal	Left	(N)		(f)	Righ	t (N)		(f)
Zygomatic	Left	(N)		(f)	Righ			(f)
Lacrimal	Left	(N)		(f)	Righ	t (N)		(f)
Palate	Left	(N)		(f)	Righ			(f)
Inf. Nas. Conhc.	Left	(N)		(f)	Righ	t (N)		(f)
Maleus	Left	(N)		(f)	Righ	t (N)		(f)
Incus	Left	(N)		(f)	Righ	t (N)		(f)
Stapes	Left	(N)		(f)	Righ	t (N)		(f)
Mandibular Teeth	(N)		(f)					
Maxillary Teeth	(N)		(f)					
Unclassified Teeth	(N)		(f)					
Wormian Bones	(N)		(f)					
	_							
POSTCRANIAL								
Cervical Vertebrae	(N)		(f)					
Thoracic Vertabrae	(N)		(f)					
Lumbar Vertabrae	(N)		(f)					
Unclassified Vertabrae	(N)		(f)					
Sacrum	(N)		(f)					
Соссух	(N)		(f)					
Sternum	(N)		(f)					
Ribs	(N)		(f)					
Scapula	Left	(N)		(f)	Righ			(f)
Clavicle	Left	(N)		(f)	Righ			(f)
Humerus	Left	(N)		(f)	Righ	. ,		(f)
Radius	Left	(N)		(f)	Righ			(f)
Ulna	Left	(N)		(f)	Righ			(f)
Carpals	Left	(N)		(f)	Righ			(f)
Metacarpals	Left	(N)		(f)	Righ			(f)
Hand Phalanges	Left	(N)		(f)	Righ	. ,		(f)
Innominate	Left	(N)		(f)	Righ	. ,		(f)
Femur	Left	(N)		(f)	Righ			(f)
Patella	Left	(N)		(f)	Righ	. ,		(f)
Tibia	Left	(N)		(f)	Righ	. ,		(f)
Fibula	Left	(N)		(f)	Righ			(f)
Tarsals	Left	(N)		(f)	Righ			(f)
Metatarsals	Left	(N)		(f)	Righ			(f)
Foot Phalanges	Left	(N)		(f)	Righ	t (N)		(f)

*	Elemen	ts in	x f	fragm	ents
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\*\* Further explaination present

Total	(N):	4
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	Comments		
**	Further Explaination:		
	(N)	(f)	
	. ,	( )	

CU 583				
BOZ 0048				
Stolz				
Burial #	Burial # 9			
Individual N/A				
(Individual = N/A if one)				

Misc. Bags:							
Misc. Cranial Vault	(N)	(f)	4				
	(N)	(f)					
	(N)	(f)					
	(N)	(f)					
	(N)	(f)					
	(N)	(f)					
	(N)	(f)					
_	(N)	(f)					

Age 9-11 fetal lunar months according to Meer 1990

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.
This inventory was checked against the 1989 inventories Initial inventory completed by: AJ, JB, DS, EL

								CU 583	
CRANIAL							В	OZ 004	8
Frontal	(N)	1	(f)					Stolz	
Occipital	(N)		(f)				Burial #		10
Sphenoid	(N)		(f)				Individu	al	N/A
Mandible	(N)		(f)				(Individua	al = N/A i	f one)
Ethmoid	(N)		(f)						
Vomer	(N)		(f)						
Hyoid	(N)		(f)						
Parietal	Left	(N)		(f)	Righ	t (N)	1	(f)	3
Temporal	Left	(N)		(f)	Righ	t (N)		(f)	
Maxilla	Left	(N)		(f)	Righ	t (N)		(f)	
Nasal	Left	(N)		(f)	Righ	t (N)		(f)	
Zygomatic	Left	(N)		(f)	Righ			(f)	
Lacrimal	Left	(N)		(f)	Righ	t (N)		(f)	
Palate	Left	(N)		(f)	Righ	t (N)		(f)	
Inf. Nas. Conhc.	Left	(N)		(f)	Righ	t (N)		(f)	
Maleus	Left	(N)		(f)	Righ	t (N)		(f)	
Incus	Left	(N)		(f)	Righ	t (N)		(f)	
Stapes	Left	(N)		(f)	Righ	t (N)		(f)	
Mandibular Teeth	(N)		(f)			•		•	
Maxillary Teeth	(N)		(f)						
Unclassified Teeth	(N)		(f)						
Wormian Bones	(N)		(f)						
POSTCRANIAL									
Cervical Vertebrae	(N)		(f)						
Thoracic Vertabrae	(N)		(f)						
Lumbar Vertabrae	(N)		(f)						
Unclassified Vertabrae	(N)		(f)						
Sacrum	(N)		(f)						
Соссух	(N)		(f)						
Sternum	(N)		(f)						
Ribs	(N)		(f)						
Scapula	Left	(N)		(f)	Righ	t (N)		(f)	
Clavicle	Left	(N)		(f)	Righ	t (N)		(f)	
Humerus	Left	(N)		(f)	Righ	t (N)		(f)	
Radius	Left	(N)		(f)	Righ	t (N)		(f)	
Ulna	Left	(N)		(f)	Righ	t (N)		(f)	
Carpals	Left	(N)		(f)	Righ	t (N)		(f)	
Metacarpals	Left	(N)		(f)	Righ	t (N)		(f)	
Hand Phalanges	Left	(N)		(f)	Righ	t (N)		(f)	
Innominate	Left	(N)		(f)	Righ	t (N)		(f)	
Femur	Left	(N)		(f)	Righ	t (N)		(f)	
Patella	Left	(N)		(f)	Righ			(f)	
Tibia	Left	(N)		(f)	Righ	. ,		(f)	
Fibula	Left	(N)		(f)	Righ	. ,		(f)	
Tarsals	Left	(N)		(f)	Righ			(f)	
Metatarsals	Left	(N)		(f)	Righ	. ,		(f)	
Foot Phalanges	Left	(N)		(f)	Righ			(f)	
U		. ,		` '	- 0	/		. , ,	

*	Elemen	ts in	x f	fragm	ents
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\*\* Further explaination present

Total	(N):	2
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Comments								
**	Further Explaination:							
	(N)	(f)						
	(N)	(f)						
	(N)	(f)						
	(N)	(f)						
	(N)	(f)						
	(N)	(f)						
	(N)	(f)						
	(N)	(f)						
	•							

BOZ 0048						
Stolz						
Burial # 10						
Individual	N/A					
(Individual = N/A if one)						

Misc. Bags:							
(N)	(f)						
(N)	(f)						
(N)	(f)						
(N)	(f)						
(N)	(f)						
(N)	(f)						
(N)	(f)						
(N)	(f)						
	(N) (N) (N) (N) (N)						

Age 9-11 fetal lunar months according to Meer 1990

One element may have fragments in multiple bags. Fragment totals listed encompass all bags.
This inventory was checked against the 1989 inventories Initial inventory completed by: AJ, JB, DS, EL

Altoni	hura	Cemetery	Ruria	l· 1*	
ıAiteni	oure	cemeterv	Duria	н.	

Skeletal Pathology & Trauma Recording Form					
Pathology	Present	Elements			
Unidentified Lesions					
Blastic					
Lytic					
Growth & Developmental Stress					
Cribra orbitalia					
Porotic hyperostosis					
Spina bifida					
Other:					
Joint Pathology					
Anklyosis					
Eburnation					
Schmorls nodes					
Osteophytic lipping					
Joint degeneration					
Other:					
Non-specific Infections					
Periostitis					
Osteomyelitis					
Other:					
Neoplastic Conditions					
Osteoma					
Neoplasm					
Other:					
Trauma					
Healed fracture					
Other:					
Dental Pathology	Present	Elements			
Growth & Developmental Stress					
Enamel Hypoplasia					
Other:					
Periodontal disease					
Calculus					
Caries					
Abscess					
Remodeled alveolus/tooth loss					
Other:					
Anomolous Conditions					
Peg tooth					
Supernumerary tooth					
Other:					
Cultural / Occupational Modification	n				
Pipestem grooves					
Other:					

<sup>\*</sup>no pathology or trauma present

Chalata	1	D-	Ab alaa	. O. Turanas Danaudina Faura
	Ш			y & Trauma Recording Form
Pathology		r	resent	Elements
Unidentified Lesions	Г	_		Г
Blastic	Ļ	_		
Lytic	L			
Growth & Developmental Stress	Гг			I
Cribra orbitalia	Ļ	√		Frontal
Porotic hyperostosis	Ļ	_		
Spina bifida	Ļ	_		
Other:	Ц			
Joint Pathology				
Anklyosis	Ц			
Eburnation	Ц			
Schmorls nodes	Ц			
Osteophytic lipping	Ц			
Joint degeneration	Ц			
Other:				
Non-specific Infections				
Periostitis	[			
Osteomyelitis				
Other:				
Neoplastic Conditions				
Osteoma				
Neoplasm	[			
Other:	[			
Trauma				
Healed fracture				
Other:	[			
Dental Pathology		Pi	resent	Elements
Growth & Developmental Stress				
Enamel Hypoplasia	[			
Other:	[			
Periodontal disease				
Calculus				
Caries	[			
Abscess				
Remodeled alveolus/tooth loss				
Other:	Π			
Anomolous Conditions				
Peg tooth				
Supernumerary tooth	Ī			
Other:	Ī			
Cultural / Occupational Modification	n			
Pipestem grooves				
Other:	Ī			

Sk	eletal F	atholog	y & Trauma Recording Form				
Pathology	1	Present	Elements				
Unidentified Lesions							
Blastic	Į.	/	R Humerus				
Lytic							
Growth & Developmental Stress							
Cribra orbitalia							
Porotic hyperostosis							
Spina bifida							
Other:							
Joint Pathology							
Anklyosis							
Eburnation	Ŀ	/	R Humerus, R Radius				
Schmorls nodes							
		/	Mandible, R Humerus, R Radius, R Ulna, C and L				
Osteophytic lipping			Vertebrae				
Joint degeneration	Ŀ	/	R Humerus				
Other:							
Non-specific Infections							
Periostitis							
Osteomyelitis							
Other:							
<b>Neoplastic Conditions</b>							
Osteoma							
Neoplasm							
Other:							
Trauma							
Healed fracture	Ŀ	/	R Humerus				
Other:							
			•				
Dental Pathology		Present	Elements				
<b>Growth &amp; Developmental Stres</b>	S						
Enamel Hypoplasia							
Other:							
Periodontal disease							
Calculus	Ŀ	/	L and R Maxillae, L and R Mandible				
Caries	Ŀ	/	L and R Maxillae, L Mandible				
Abscess							
Remodeled alveolus/tooth loss	Ŀ	/	L and R Maxillae, L and R Mandible				
Other:							
Anomolous Conditions			•				
Peg tooth							
Supernumerary tooth							
Other:							
<b>Cultural / Occupational Modific</b>	ation						
Pipestem grooves							
Other:							

Skeld	etal <u>Patho</u>	ology & Trauma Recording Form
Pathology	Prese	
Unidentified Lesions		
Blastic		
Lytic	<b>√</b>	Frontal, Temporals, Occipital, C and T Vertebrae
Growth & Developmental Stress		
Cribra orbitalia	4	Frontal
Porotic hyperostosis		
Spina bifida		
Other:		
Joint Pathology		
Anklyosis		
Eburnation		
Schmorls nodes		
Osteophytic lipping	<b>4</b>	C Vertebrae
Joint degeneration	<b>V</b>	C and T Vertebrae
Other:		
Non-specific Infections		
Periostitis		
Osteomyelitis		
Other:		
Neoplastic Conditions	-	
Osteoma		
Neoplasm		
Other:		
Trauma		
Healed fracture		
Other:		
Dental Pathology	Prese	ent Elements
<b>Growth &amp; Developmental Stress</b>		
Enamel Hypoplasia		
Other:		
Periodontal disease		
Calculus	✓	3 loose teeth
Caries	✓	1 loose tooth
Abscess		
Remodeled alveolus/tooth loss	✓	L and R Mandible
Other:		
Anomolous Conditions		
Peg tooth		
Supernumerary tooth		
Other:		
<b>Cultural / Occupational Modificat</b>	ion	
Pipestem grooves		
Other:		

	_		y & Trauma Recording Form
Pathology		resent	Elements
Unidentified Lesions	1	1	In my .
Blastic	ļĿ		R Tibia
Lytic	Ŀ	′	Frontal
Growth & Developmental Stress	1	7	T=
Cribra orbitalia	1	<u>′</u>	Frontal
Porotic hyperostosis	╀		
Spina bifida	4		
Other:	IL		
Joint Pathology	1	7	
Anklyosis	11		
Eburnation	11		
Schmorls nodes	4		
Osteophytic lipping	11		
Joint degeneration	<u> </u>		
Other:	JL		
Non-specific Infections		_	
Periostitis	11		
Osteomyelitis	11		
Other:	JL		
Neoplastic Conditions			
Osteoma	<u> </u>		
Neoplasm	<u> L</u>		
Other:			
Trauma			
Healed fracture	<u> L</u>		
Other:			
Dental Pathology		Present	Elements
Growth & Developmental Stress		_	<del>,</del>
Enamel Hypoplasia	<u> </u>		
Other:			
Periodontal disease			
		′	R Mandible, 2 loose teeth (likely Maxillary), 9 loose teeth
Calculus	_	_	(likely Mandibular)
	ΙĿ	′	8 loose teeth (likely Maxillary), 3 loose teeth (likely
Caries			Mandibular)
Abscess	<u>  L</u>		
Remodeled alveolus/tooth loss	Ŀ	′	L Mandible
Other:			
Anomolous Conditions			
Peg tooth			
Supernumerary tooth	ΙĹ		
Other:			
Cultural / Occupational Modification	n		
Pipestem grooves			
Other:	ΙĹ		

Chalak	al F	a khala s	Turana December Forms
			y & Trauma Recording Form
Pathology Unidentified Lesions		Present	Elements
	TE		T
Blastic	┼		
Lytic	IL		
Growth & Developmental Stress	1	1	T
Cribra orbitalia	╀	1	
Porotic hyperostosis	╀		
Spina bifida	╀		
Other:			
Joint Pathology	1	_	
Anklyosis	<u> </u>		
Eburnation	1		
Schmorls nodes	<u>↓</u> L		
Osteophytic lipping	<u>  L</u>	<u>′</u>	R and L Ilia
Joint degeneration	<u> L</u>		
Other:			
Non-specific Infections			
Periostitis			
Osteomyelitis			
Other:			
Neoplastic Conditions			
Osteoma			
Neoplasm			
Other:			
Trauma			
Healed fracture			
Other:			
Dental Pathology		Present	Elements
<b>Growth &amp; Developmental Stress</b>			
Enamel Hypoplasia			
Other:			
Periodontal disease			
Calculus	Ŀ	′	L and R Maxillae, L and R Mandible
Caries	Ŀ	′	L and R Maxillae, L and R Mandible
Abscess			
Remodeled alveolus/tooth loss			
Other:			
Anomolous Conditions			
Peg tooth			
Supernumerary tooth	T		
Other:	T		
<b>Cultural / Occupational Modification</b>	on		
Pipestem grooves			
Other:	ΤĒ		

Skel	etal Path <u>ol</u>	ogy & Trauma Recording Form
Pathology	Preser	
Unidentified Lesions		·
Blastic	<b>J</b>	L Pelvis, L Femur
Lytic	✓	Frontal, L Pelvis
<b>Growth &amp; Developmental Stress</b>		•
Cribra orbitalia		
Porotic hyperostosis		
Spina bifida		
Other:		
Joint Pathology		
Anklyosis		
Eburnation	✓	L Pelvis, L Femur
Schmorls nodes		
Osteophytic lipping	✓	L and R Femurs, C Vertebrae
Joint degeneration		
Other:		
Non-specific Infections		
Periostitis		
Osteomyelitis		
Other:		
Neoplastic Conditions		
Osteoma		
Neoplasm		
Other:		
Trauma		
Healed fracture		
Other:		
Dental Pathology	Preser	nt Elements
Growth & Developmental Stress		
Enamel Hypoplasia		
Other:		
Periodontal disease		
Calculus	✓	L and R Maxillae
Caries	✓	L and R Maxillae, 4 loose teeth
Abscess		
Remodeled alveolus/tooth loss	<b>√</b>	L and R Mandible
Other:		
Anomolous Conditions		
Peg tooth		
Supernumerary tooth		
Other:		
Cultural / Occupational Modificat	ion	
Pipestem grooves		
Other:		

Skeld	etal Path <u>olo</u>	gy & Trauma Recording Form
Pathology	Present	
Unidentified Lesions		•
Blastic		
Lytic	<b>√</b>	Frontal, L Vertebrae
Growth & Developmental Stress		<u> </u>
Cribra orbitalia		
Porotic hyperostosis		
Spina bifida		
Other: Congenital anomaly	<b>V</b>	L and R Parietals
Joint Pathology		•
Anklyosis		
Eburnation		
Schmorls nodes		
Osteophytic lipping	4	L Vertebrae, L and R Pelvis
Joint degeneration		
Other:		
Non-specific Infections		
Periostitis		
Osteomyelitis		
Other:		
Neoplastic Conditions		
Osteoma		
Neoplasm		
Other:		
Trauma		
Healed fracture		
Other:		
Dental Pathology	Present	Elements
Growth & Developmental Stress		
Enamel Hypoplasia		
Other:		
Periodontal disease		
Calculus	✓	3 loose teeth
Caries		
Abscess		
Remodeled alveolus/tooth loss	✓	L and R Mandible
Other:		
Anomolous Conditions		
Peg tooth		
Supernumerary tooth		
Other:		
Cultural / Occupational Modificat	ion	
Pipestem grooves		
Other:		

Cholet	اما	D.	****	y & Trauma Recording Form
	aı			
Pathology Unidentified Lesions		۲	resent	Elements
	11		1	Г
Blastic	-	_	1	
Lytic	Ш			
Growth & Developmental Stress	Т.		1	
Cribra orbitalia	Ц			
Porotic hyperostosis	Ц			
Spina bifida	Щ			
Other: congental anomaly	Ш	✓		L Vertebra
Joint Pathology				
Anklyosis	Щ			
Eburnation	Щ			
Schmorls nodes	Щ	✓		T Vertebrae
Osteophytic lipping	Щ			
Joint degeneration	Щ			
Other:				
Non-specific Infections				
Periostitis				
Osteomyelitis				
Other:				
Neoplastic Conditions				
Osteoma	П			
Neoplasm	П			
Other:	][			
Trauma				
Healed fracture	П			
Other:	][			
Dental Pathology		P	resent	Elements
<b>Growth &amp; Developmental Stress</b>				
Enamel Hypoplasia	П			
Other:	П			
Periodontal disease				
Calculus	П	√		L and R Maxillae, L and R Mandible
Caries	П	J		L Mandible
Abscess	П			
Remodeled alveolus/tooth loss	П	J		R Maxilla, L Mandible
Other:	П			
Anomolous Conditions				
Peg tooth	[			
Supernumerary tooth	Ti			
Other:	Ti			
	on.			
	1			
Other:	Ti			
Supernumerary tooth Other: Cultural / Occupational Modification Pipestem grooves	           			

Altenburg	Cemetery	<b>Rurial</b>	10*
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Skeleta	al Patholog	y & Trauma Recording Form
Pathology	Present	Elements
Unidentified Lesions		
Blastic		
Lytic		
Growth & Developmental Stress		
Cribra orbitalia		
Porotic hyperostosis		
Spina bifida		
Other:		
Joint Pathology		
Anklyosis		
Eburnation		
Schmorls nodes		
Osteophytic lipping		
Joint degeneration		
Other:		
Non-specific Infections		
Periostitis		
Osteomyelitis		
Other:		
Neoplastic Conditions		
Osteoma		
Neoplasm		
Other:		
Trauma		
Healed fracture		
Other:		
Dental Pathology	Present	Elements
Growth & Developmental Stress		
Enamel Hypoplasia		
Other:		
Periodontal disease		
Calculus		
Caries		
Abscess		
Remodeled alveolus/tooth loss		
Other:		
Anomolous Conditions		
Peg tooth		
Supernumerary tooth		
Other:		
<b>Cultural / Occupational Modificatio</b>	n	
Pipestem grooves		
Other:		

<sup>\*</sup>no pathology or trauma present

	KEIELA			y & Trauma Necorum Form
Pathology		P	resent	Elements
Unidentified Lesions		_		
Blastic		느		
Lytic		L		
Growth & Developmental Stre	ess .	_		
Cribra orbitalia		L		
Porotic hyperostosis		L		
Spina bifida		L		
Other:				
Joint Pathology				
Anklyosis				
Eburnation				
Schmorls nodes				
Osteophytic lipping				
Joint degeneration				
Other:				
Non-specific Infections				
Periostitis				
Osteomyelitis				
Other:				
Neoplastic Conditions				
Osteoma				
Neoplasm				
Other:				
Trauma				
Healed fracture				
Other:				
Dental Pathology		P	resent	Elements
<b>Growth &amp; Developmental Stre</b>	ess			
Enamel Hypoplasia				
Other:				
Periodontal disease				
Calculus				
Caries				
Abscess				
Remodeled alveolus/tooth loss	5			
Other:				
Anomolous Conditions				
Peg tooth				
Supernumerary tooth				
Other:				
<b>Cultural / Occupational Modif</b>	icatior	1		
Pipestem grooves				
Other:				

<sup>\*</sup>no pathology or trauma present

Skele	tal Pathol	logy & Trauma Recording Form
Pathology	Preser	
Unidentified Lesions	TTCSCI	Elements
Blastic		
Lytic	<b>-</b>	L Vertebrae
Growth & Developmental Stress		2.0.000.00
Cribra orbitalia		
Porotic hyperostosis	╅	
Spina bifida		
Other:	ᅥᆏ	
Joint Pathology		
Anklyosis		
Eburnation		
Schmorls nodes		
Osteophytic lipping		
Joint degeneration		
Other:		
Non-specific Infections		·
Periostitis	1	L and R Tibias, R Fibula
Osteomyelitis		
Other:		
Neoplastic Conditions		•
Osteoma	1	Frontal
Neoplasm		
Other:		
Trauma		
Healed fracture		
Other:		
Dental Pathology	Preser	nt Elements
Growth & Developmental Stress		
Enamel Hypoplasia		
Other:		
Periodontal disease		
Calculus	1	11 loose teeth
Caries	✓	6 loose teeth
Abscess		
Remodeled alveolus/tooth loss	<b>V</b>	L and R Mandible
Other:		
Anomolous Conditions	1	
Peg tooth	<b>✓</b>	2 loose teeth
Supernumerary tooth	ᆜᆜ	
Other:		
Cultural / Occupational Modification	ion	
Pipestem grooves	ᆜᆜ	
Other:		

Skelet	al	Pa	atholog	y & Trauma Recording Form
Pathology	T		resent	Elements
Unidentified Lesions				
Blastic		J		L Ulna, L and R Ilia, L and R Tarsals
	Ti	<b>√</b>		L and R Ribs, C and T Vertebrae, L and R Ilia, L and R
Lytic	'			Tarsals
Growth & Developmental Stress				
Cribra orbitalia				
Porotic hyperostosis	П			
Spina bifida	T			
Other:				
Joint Pathology				
Anklyosis				
Eburnation	T			
Schmorls nodes				
Osteophytic lipping	П	✓		C Vertebrae
Joint degeneration				
Other:	П			
Non-specific Infections				
Periostitis		✓		L Rib
Osteomyelitis				
Other:				
<b>Neoplastic Conditions</b>				
Osteoma				
Neoplasm				
Other:				
Trauma				
Healed fracture		✓		R Ribs
Other:				
Dental Pathology		P	resent	Elements
Growth & Developmental Stress				
Enamel Hypoplasia	Ц			
Other:				
Periodontal disease	_	_	1	
Calculus	Щ	✓		L and R Mandible
Caries	Щ	√		L Maxilla, L and R Mandible
Abscess	Щ			
Remodeled alveolus/tooth loss	Ц	√		L and R Maxillae, L and R Mandible
Other:				
Anomolous Conditions	_			T
Peg tooth	$\downarrow$	L		
Supernumerary tooth	$\downarrow$	L		
Other:				
Cultural / Occupational Modification	on		1	
Pipestem grooves	$\downarrow$	L		
Other:				

Skeleta	l P	atholog	y & Trauma Recording Form
Pathology		resent	Elements
Unidentified Lesions	Ť		
Blastic	<b>V</b>	]	R Humerus
	<b>√</b>	]	C, T, L, and S Vertebrae, R Humerus, L and R Radii, R
Lytic		1	Ulna, L Metacarpal, L and R Tibia, L Metatarsal
Growth & Developmental Stress			oma, E metacarpai, E ana it moia, E metacarsar
Cribra orbitalia	Г	]	
Porotic hyperostosis	T	1	
Spina bifida	十	ĺ	
Other:	T	1	
Joint Pathology	_		
Anklyosis	1	]	T Vertebrae
7	<b>√</b>	]	C Vertebrae, R Humerus, R and L Radii, R Ulna, L
Eburnation	_		Metatarsal
Schmorls nodes	Г	]	
	<b>√</b>	ĺ	C, T, L Vertebrae, L and R Ulnae, L and R Carpals, L and R
Osteophytic lipping		•	Metacarpals
Joint degeneration	Т	]	, metasar para
Other: Kyphosis	<b>√</b>	1	T, L Vertebrae
Other: Vertebra Collapse	\ \	1	L Vertebrae
Non-specific Infections			2.13.133.43
Periostitis	<b>V</b>	]	R Femur
Osteomyelitis	十	]	A T Cital
Other: Unknown	<b>√</b>	1	R Femur
Neoplastic Conditions	_	•	
Osteoma	<b>V</b>	]	L Parietal
Neoplasm	T	1	
Other:	丅	ĺ	
Trauma		-	
Healed fracture	<b>√</b>		L Ulna, L Metacarpal, R Parietal
Other: Possible	<b>√</b>	i	Frontal
	_	•	L
Dental Pathology	Р	resent	Elements
Growth & Developmental Stress			
Enamel Hypoplasia	Т	]	
Other:	广	ĺ	
Periodontal disease		-	
Calculus	<b>√</b>	]	L and R Maxillae
Caries	<b>√</b>	1	L Maxilla, L and R Mandible
Abscess	广	1	
Remodeled alveolus/tooth loss	<b>√</b>	i	L and R Maxillae, L and R Mandible
Other:	十	ĺ	
Anomolous Conditions		-	
Peg tooth	Г		
Supernumerary tooth	T	<u>.                                      </u>	
Other:	T	i	
Cultural / Occupational Modification	<u> </u>	•	ı
Pipestem grooves	Т	]	
Other: Unidentified wear	<b>√</b>	]	L and R Maxillae

Stolz Cemetery Burial: 3* Completed by: AMJ and JI
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Skeletal Pathology & Trauma Recording Form

Pathology	Present	Elements				
Unidentified Lesions						
Blastic						
Lytic						
Growth & Developmental Stress						
Cribra orbitalia						
Porotic hyperostosis						
Spina bifida						
Other:						
Joint Pathology						
Anklyosis						
Eburnation						
Schmorls nodes						
Osteophytic lipping						
Joint degeneration						
Other:						
Non-specific Infections						
Periostitis						
Osteomyelitis						
Other:						
Neoplastic Conditions						
Osteoma						
Neoplasm						
Other:						
Trauma						
Healed fracture						
Other:						
Dental Pathology	Present	Elements				
<b>Growth &amp; Developmental Stress</b>						
Enamel Hypoplasia						
Other:						
Periodontal disease						
Calculus						
Caries						
Abscess						
Remodeled alveolus/tooth loss						
Other:						
Anomolous Conditions						
Peg tooth						
Supernumerary tooth						
Other:						
Cultural / Occupational Modification						
Pipestem grooves						
Other:						
	·	*no nathology or trauma procent				

<sup>\*</sup>no pathology or trauma present

		_		_		_				_	
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Skeletal Pathology & Trauma Recording Form						
Pathology	Present	Elements				
Unidentified Lesions						
Blastic						
Lytic						
Growth & Developmental Stress						
Cribra orbitalia						
Porotic hyperostosis						
Spina bifida						
Other:						
Joint Pathology						
Anklyosis						
Eburnation						
Schmorls nodes						
Osteophytic lipping						
Joint degeneration						
Other:						
Non-specific Infections						
Periostitis						
Osteomyelitis						
Other:						
Neoplastic Conditions						
Osteoma						
Neoplasm						
Other:						
Trauma						
Healed fracture						
Other:						
Dental Pathology	Present	Elements				
<b>Growth &amp; Developmental Stress</b>						
Enamel Hypoplasia						
Other:						
Periodontal disease						
Calculus						
Caries						
Abscess						
Remodeled alveolus/tooth loss						
Other:						
Anomolous Conditions						
Peg tooth						
Supernumerary tooth						
Other:						
<b>Cultural / Occupational Modification</b>	on					
Pipestem grooves						
Other:						

<sup>\*</sup>no pathology or trauma present

Stolz Cemetery Burial: 5*	Completed by: AMJ and JIE
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Skeletal Pathology & Trauma Recording Form

Growth & Developmental Stress	Pathology	Present	Elements				
Lytic Growth & Developmental Stress  Cibra orbitalia	Unidentified Lesions						
Growth & Developmental Stress	Blastic						
Cribra orbitalia	Lytic						
Porotic hyperostosis							
Spina bifida	Cribra orbitalia						
Other:	Porotic hyperostosis						
Joint Pathology	Spina bifida						
Anklyosis	Other:						
Eburnation	Joint Pathology						
Schmorls nodes	Anklyosis						
Osteophytic lipping	Eburnation						
Joint degeneration	Schmorls nodes						
Other:         □           Non-specific Infections           Periostitis         □           Osteomyelitis         □           Other:         □           Neoplastic Conditions         □           Osteoma         □           Neoplasm         □           Other:         □           Trauma         □           Healed fracture         □           Other:         □           Other:         □           Bamel Hypoplasia         □           Other:         □           Periodontal disease         □           Calculus         □           Caries         □           Abscess         □           Remodeled alveolus/tooth loss         □           Other:         □           Anomolous Conditions           Peg tooth         □           Supernumerary tooth         □           Other:         □           Cultural / Occupational Modification	Osteophytic lipping						
Non-specific Infections Periostitis Osteomyelitis Osteomyelitis Osteoma Osteoma Neoplasm Other: Other:  Dental Pathology Present  Dental Pathology Present  Flements  Growth & Developmental Stress Enamel Hypoplasia Other:  Dental Pathologia  Other:  Dental Pathologia  Other:  Dental Pathology Present  Flements  Growth & Developmental Stress  Enamel Hypoplasia Other:  Dental Pathologia  Other:  Dental Pathology Present  Flements  Growth & Developmental Stress  Enamel Hypoplasia  Other:  Dental Pathology Present  Flements	Joint degeneration						
Periostitis Osteomyelitis Other:							
Osteomyelitis Other:	Non-specific Infections						
Other:         □           Neoplastic Conditions           Osteoma         □           Neoplasm         □           Other:         □           Trauma         □           Healed fracture         □           Other:         □           Dental Pathology         Present         Elements           Growth & Developmental Stress           Enamel Hypoplasia         □         Other:           Periodontal disease         □         Other:           Caries         □         Other:           Abscess         □         Other:           Remodeled alveolus/tooth loss         □         Other:           Anomolous Conditions         □         Other:           Peg tooth         □         Supernumerary tooth           Other:         □         Other:           Cultural / Occupational Modification         Pipestem grooves         □	Periostitis						
Neoplastic Conditions Osteoma Neoplasm Other:  Trauma Healed fracture Other:  Dental Pathology Present Growth & Developmental Stress Enamel Hypoplasia Other:  Periodontal disease Calculus Caries Abscess Remodeled alveolus/tooth loss Other:  Abscess Remodous Conditions Peg tooth Supernumerary tooth Other:  Cultural / Occupational Modification Pipestem grooves	Osteomyelitis						
Osteoma  Neoplasm Other:  Trauma  Healed fracture Other:  Dental Pathology Present  Flements  Growth & Developmental Stress  Enamel Hypoplasia Other:  Periodontal disease  Calculus Caries Abscess Remodeled alveolus/tooth loss Other:  Remodeled alveolus/tooth loss Other:  Remodous Conditions  Peg tooth Supernumerary tooth Other:  Cultural / Occupational Modification  Pipestem grooves	Other:						
Neoplasm Other:  Trauma Healed fracture Other:  Dental Pathology Present Elements  Growth & Developmental Stress  Enamel Hypoplasia Other:  Periodontal disease Calculus Caries Abscess Remodeled alveolus/tooth loss Other:  Anomolous Conditions Peg tooth Supernumerary tooth Other: Cultural / Occupational Modification Pipestem grooves	Neoplastic Conditions						
Other:  Trauma  Healed fracture Other:  Dental Pathology Present  Growth & Developmental Stress  Enamel Hypoplasia Other:  Periodontal disease  Calculus Caries Abscess Remodeled alveolus/tooth loss Other:  Anomolous Conditions Peg tooth Supernumerary tooth Other: Cultural / Occupational Modification Pipestem grooves  Elements  Element	Osteoma						
Trauma  Healed fracture  Other:  Dental Pathology Present  Growth & Developmental Stress  Enamel Hypoplasia Other:  Periodontal disease  Calculus Caries Abscess Remodeled alveolus/tooth loss Other:  Anomolous Conditions  Peg tooth Supernumerary tooth Other:  Cultural / Occupational Modification  Pipestem grooves  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Elements  Ele	Neoplasm						
Healed fracture	Other:						
Dental Pathology Present Elements  Growth & Developmental Stress  Enamel Hypoplasia	Trauma						
Dental Pathology Present Elements  Growth & Developmental Stress  Enamel Hypoplasia	Healed fracture						
Enamel Hypoplasia	Other:						
Enamel Hypoplasia							
Enamel Hypoplasia		Present	Elements				
Other:  Periodontal disease  Calculus  Caries  Abscess  Remodeled alveolus/tooth loss Other:  Anomolous Conditions  Peg tooth Supernumerary tooth Other:  Cultural / Occupational Modification  Pipestem grooves							
Periodontal disease  Calculus  Caries  Abscess  Remodeled alveolus/tooth loss Other:  Anomolous Conditions  Peg tooth Supernumerary tooth Other:  Cultural / Occupational Modification  Pipestem grooves							
Calculus Caries Abscess Remodeled alveolus/tooth loss Other: Anomolous Conditions Peg tooth Supernumerary tooth Other: Cultural / Occupational Modification Pipestem grooves  Caries  Cultural / Occupational Modification  Cultural / Occupational Modification  Cultural / Occupational Modification							
Caries Abscess Remodeled alveolus/tooth loss Other: Anomolous Conditions Peg tooth Supernumerary tooth Other: Cultural / Occupational Modification Pipestem grooves							
Abscess  Remodeled alveolus/tooth loss Other:  Anomolous Conditions  Peg tooth Supernumerary tooth Other:  Cultural / Occupational Modification  Pipestem grooves	Calculus						
Remodeled alveolus/tooth loss Other:  Anomolous Conditions Peg tooth Supernumerary tooth Other: Cultural / Occupational Modification Pipestem grooves	Caries						
Other:  Anomolous Conditions  Peg tooth Supernumerary tooth Other: Cultural / Occupational Modification  Pipestem grooves							
Anomolous Conditions  Peg tooth Supernumerary tooth Other: Cultural / Occupational Modification  Pipestem grooves							
Peg tooth Supernumerary tooth Other: Cultural / Occupational Modification Pipestem grooves							
Supernumerary tooth Other: Cultural / Occupational Modification Pipestem grooves							
Other:  Cultural / Occupational Modification  Pipestem grooves	Peg tooth						
Cultural / Occupational Modification  Pipestem grooves	Supernumerary tooth						
Pipestem grooves							
	Cultural / Occupational Modification						
Other:							
*no nathology or trauma procent	Other:						

<sup>\*</sup>no pathology or trauma present

Skelet	al	D:	thology	/ & Trauma Recording Form
Pathology	aı T		resent	Elements
Unidentified Lesions				
Blastic	П	J		R Femur
Lytic	╁	_		KTCIIIII
Growth & Developmental Stress				
Cribra orbitalia	П			
Porotic hyperostosis	╁	<b>√</b>		L and R Parietals
Spina bifida	╁			2 dila il i difetalo
Other:	ΤÌ			
Joint Pathology				
Anklyosis	П			
Eburnation	Τi			
Schmorls nodes	Ti			
Osteophytic lipping	ΤÌ	√		L Pelvis
Joint degeneration	ΤÌ			
Other:	Τi			
Non-specific Infections				
Periostitis	П			
Osteomyelitis	ΤĪ			
Other:	ΤĪ			
Neoplastic Conditions				
Osteoma	Π			
Neoplasm				
Other:	][			
Trauma				
Healed fracture		√		Nasal bones
Other:	[			
Dental Pathology		Pi	resent	Elements
Growth & Developmental Stress				
Enamel Hypoplasia	Щ	J		L and R Mandible
Other:	Ш			
Periodontal disease				
Calculus		√		L and R Mandible
Caries	Щ	√		L Mandible
Abscess	Щ			
Remodeled alveolus/tooth loss	Щ			
Other:	Ш			
Anomolous Conditions	Т.			
Peg tooth	Ц			
Supernumerary tooth	Ц			
Other:				
Cultural / Occupational Modification				
Pipestem grooves	Ц			
Other:	Ш			

Skele	tal Pathol	ogy & Trauma Recording Form
Pathology	Presen	
Unidentified Lesions	110001	<u> </u>
Blastic	<b>V</b>	L and R Pelvis
Lytic	<b>√</b>	L and R Pelvis
Growth & Developmental Stress		
Cribra orbitalia		
Porotic hyperostosis	TH	
Spina bifida		
Other:		
Joint Pathology	1	•
Anklyosis		
Eburnation	<b>√</b>	L Pelvis
Schmorls nodes	<b>√</b>	T Vertebrae
Osteophytic lipping	<b>√</b>	L Rib, L and R Radii, R Ulna, L and R Pelvis, R Femur
Joint degeneration	10	
Other:		
Non-specific Infections		<u> </u>
Periostitis		
Osteomyelitis		
Other:		
Neoplastic Conditions		
Osteoma		
Neoplasm		
Other:		
Trauma		
Healed fracture	✓	L Vertebra
Other:		
Dental Pathology	Presen	t Elements
Growth & Developmental Stress		
Enamel Hypoplasia		
Other:		
Periodontal disease		
Calculus		
Caries	<u> </u>	
Abscess		
Remodeled alveolus/tooth loss	<u> </u>	
Other:		
Anomolous Conditions	<del></del>	
Peg tooth	<u> </u>	
Supernumerary tooth	<u> </u>	
Other:		
Cultural / Occupational Modificati	on	
Pipestem grooves	<u> </u>	
Other:	$\sqcup$	

Sto	۱,	Car	mat.	~rv.	D.	ria	ı	0
Sto	ΙZ	cer	net	erv	ВU	ırıa	1:	ŏ

Completed by: AMJ and JIB

Skeletal Pathology & Trauma Recording Form						
Pathology		resent	Elements			
Unidentified Lesions	•	resent	Lienens			
Blastic	Ιг	1				
Lytic	占	<del> </del>	L and R Humerii			
Growth & Developmental Stress			Land Kriamen			
Cribra orbitalia	ТГ					
Porotic hyperostosis	恄	1				
Spina bifida	┢					
Other:	恄	1				
Joint Pathology						
Anklyosis	ТГ	1				
Eburnation	恄	1				
Schmorls nodes	┢	<del>-</del>				
Osteophytic lipping	Ī	,	C and T Vertebrae, L Ribs			
Joint degeneration	┢	†				
Other:	┢	<del>-</del>				
Non-specific Infections		_	L			
Periostitis	ТГ	1				
Osteomyelitis	ĪĒ	1				
Other:	ĪĒ	1				
Neoplastic Conditions	_	_				
Osteoma						
Neoplasm						
Other:						
Trauma						
Healed fracture						
Other:						
Dental Pathology		resent	Elements			
Growth & Developmental Stress		_				
Enamel Hypoplasia	ļĻ					
Other:	ļL					
Periodontal disease	T =	_	<u> </u>			
Calculus	ļĻ					
Caries	ļĻ					
Abscess	ļĻ					
Remodeled alveolus/tooth loss	ļĻ					
Other:	ΙL					
Anomolous Conditions	T -	1	T			
Peg tooth	┞	<u></u>				
Supernumerary tooth	┞	_				
Other:	<u> </u>	_				
Cultural / Occupational Modificatio	n Tr	7	Т			
Pipestem grooves	╬					
Other:	١L					

Stolz Cemetery Burial: 9* Completed by: AMJ and JI
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Skeletal Pathology & Trauma Recording Form

Pathology	Present	Elements						
Unidentified Lesions								
Blastic								
Lytic								
Growth & Developmental Stress								
Cribra orbitalia								
Porotic hyperostosis								
Spina bifida								
Other:								
oint Pathology								
Anklyosis								
Eburnation								
Schmorls nodes								
Osteophytic lipping								
Joint degeneration								
Other:								
Non-specific Infections								
Periostitis								
Osteomyelitis								
Other:								
Neoplastic Conditions								
Osteoma								
Neoplasm								
Other:								
Trauma								
Healed fracture								
Other:								
Dental Pathology	Present	Elements						
Growth & Developmental Stress		<del>,</del>						
Enamel Hypoplasia								
Other:								
Periodontal disease		<del>,</del>						
Calculus								
Caries								
Abscess								
Remodeled alveolus/tooth loss								
Other:								
Anomolous Conditions		<del>,</del>						
Peg tooth								
Supernumerary tooth								
Other:								
<b>Cultural / Occupational Modification</b>	on	<del>,</del>						
Pipestem grooves								
Other:								
		*no nathology or trauma procent						

<sup>\*</sup>no pathology or trauma present

Stolz Cemetery Burial: 10*
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Completed by: AMJ and JIB

	JKEIELA			y & Trauma Necorum Form
Pathology		Pr	esent	Elements
Unidentified Lesions		_		
Blastic		$\vdash$		
Lytic		Ш		
Growth & Developmental St	ress	_		
Cribra orbitalia		Ц		
Porotic hyperostosis		Ц		
Spina bifida		Ц		
Other:		Ш		
Joint Pathology		_		
Anklyosis		Ш		
Eburnation				
Schmorls nodes				
Osteophytic lipping				
Joint degeneration				
Other:				
Non-specific Infections				
Periostitis				
Osteomyelitis				
Other:				
Neoplastic Conditions				
Osteoma				
Neoplasm				
Other:				
Trauma				
Healed fracture				
Other:				
Dental Pathology		Pr	esent	Elements
<b>Growth &amp; Developmental St</b>	ress			
Enamel Hypoplasia				
Other:				
Periodontal disease				
Calculus				
Caries				
Abscess				
Remodeled alveolus/tooth lo	SS			
Other:				
Anomolous Conditions				
Peg tooth				
Supernumerary tooth				
Other:				
<b>Cultural / Occupational Mod</b>	ificatior	1		
Pipestem grooves				
Other:				

<sup>\*</sup>no pathology or trauma present

Juvenile Age Assessment Part I – FUSION Prenatal to Childhood Altenburg Lutheran Church Society Cemetery BOZ0009/CU584/Collection's Location: UWM-ARL	Burial No. 1
Observer Name: A.M.J. + J.J.B. Date Sta	rted: 10 12/14 Date Completed: 16/12/14
SUMMARY AGE Category:    Prenatal (Prenatal - 2.49 y)	☐ Late Childhood (6-12.9 y) ☐ Indeterminate fw / pn m/ pn y ☐ Indeterminate

# **FUSION OF OSSIFICATION CENTERS**

Use the Manual when completing this form. Record fusion data using the following codes: 0 = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when the feature is not observable.

Element	Primary Elements	Observation Code:	Fusion Complete
Sphenoid	Lesser Wings to Sphenoid Body		5 fm
•	Pre Sphenoid to Post Sphenoid Body	0/-	8 fm
	Greater Wings to Sphenoid Body	0/-	1 y
	Foramen Ovale (Greater Wing)		1 y
Temporal	Tympanic Ring to Temporal Squamous	CONTRACT OF THE PARTY OF THE PA	35 fw
	Petromastoid to Squamotympanic		1 y
Occipital	Supra-occipital to Interparietal Squama	•	5 fm
	Superior Median Fissure	-	1 y
	Sutura Mendosa	-	1 y
	Partes Laterales to Squama		1 – 3 y
	Hypoglossal Canal (Pars Laterales)	0/0	2 – 4 y
	Partes Laterales to Pars Basilaris	0/0	5 – 7 y
Mandible	Mandibular Symphysis		1 y
	Coronoid to main mass		By 8 f wks
Frontal	Fusion of L and R frontals	- ,	9 fm - 2 y
	Metopic Suture obliterated (generally)		2 – 4 y
Vertebrae	C1 - R & L Posterior arches (to one another)	0	4 <b>-</b> 5 y
	C1- Anterior arch to anterior bars	O	5 – 6 y
	C2- Intradental union (becomes Dens)		Full term
	C2- R & L Neural Arches (to one another)	0/0	3 <b>-</b> 4 y
	C2- Dens to Neural Arch	0/0	3 – 4 y
	C2- Centrum to Neural Arch	0/0	4 – 6 y
	C2- Ossiculum Terminale of dens		12 y
	C3-L5 Neural Arches (to one another)	0	1 – 2 y
	C3-L5 Neural Arches to Centra	0	2 – 5 y
Sacrum	Lateral Elements to Neural Arches → 'Wings'	_	2 – 5 y
(S1 and S2)	Wings to Centra		2 – 6 y
Os coxa	Ischiopubic ramus		5 – 11 y
Humerus	Greater and Lesser Tubercles to Head	0	2 – 6 y

<sup>\*&#</sup>x27;f m' indicates 'fetal month'; 'f wks' indicates 'fetal weeks'; 'm' indicates post natal months; and 'y' indicates postnatal years.

Estima	hote	Ano
ESUIIIU	ueu.	Aue

Step 1) Age Range.

Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with 'O' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.

8 fm

fetal weeks / postnatal months / postnatal years (circle unit)

to

fetal weeks / postnatal months / postnatal years (circle unit)

 $\square$  Indeterminate; i.e. no evidence to allow you to assign the individual to an age category. Procede to step 3.

Step 2) If you were able to provide an age range in step 1, skip this step and procede to step 3. If you selected 'indeterminate' in step 1 but your individual includes other evidence to allow you to assign the individual to an age category, indicate the information and the estimated age below. (e.g. petros portion compares favorably to individual 20 fetal weeks old). Then, use this information to select a categorical age in step 3.

Step 3) Age Category:

If you provided an age range in step 1, calculate the mean from of the ages and use the value to select an age category below.

Alternatively, if you arrived at step 3 following the directions in step 2, to proceed to assign your individual to an age category below based on the data you provided in step 2.

- Prenatal 2.5 years (Prenatal 2.49 years)
- Early Childhood (2.5 5 years)
- Late Childhood (6 12 years)
- Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

### **Comments:**

48 fm

2 co-mingled individuals, twins, combined on this form

### **JUVENILE AGE ASSESSMENT PART II form:**

~	_ ,	~ =		/ T T T T	~ ~	`
124	Prenatal -	フち	VASTC	LIMP	- 751	rearch

☐ Early Childhood (2.5 – 5 years)

☐ Late Childhood (6 – 12 years)

 $\hfill \square$  Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

<sup>\*</sup>Remember to indicate the age range in the summary section on the top of page 1 of this form.

Juvenile Age Assessment Part II- Prenatal – 2.49 year Altenburg Lutheran Church Society Cemetery BOZ0009/CU584/Collection's Location: UWM-ARL	s Burial N	(o. <u>L</u>	
Observer Name: A.M.J.+J. I. B. Date Started: Date Complete		Section 2	
SUMM/ Dental Age: Age range: - fw/pn m / pn Sub-age Category: Embryo Fetus Neonat Osteometric Age: Age range: 26 - 34 fw/pn m / pn Sub-age Category: Embryo Fetus Neonat * 'fw' fetal weeks; 'pn m' postnatal months; and 'pn y' pos	e	∏Indete ∏Indete	rminate rminate rminate rminate
NON-METRIC DENTA  Use and attach a Juvenile mixed dentition outline if that for  Mandible not present. Maxilla not present.	m is more appropriate f	for your subje	ect lot. nt.
$m^{1}$ $m^{2}$	11 2 <sub>1</sub> c	<sup>1</sup> m <sup>2</sup> m	
M <sup>1</sup>		<sup>1</sup> M	Illustration Key:  Articulated Tooth
Right Maxill	a, occlusal view	Left	O Loose Tooth
			X Missing Tooth
$\begin{array}{c} M_1 \\ \\ m_2 \\ \\ m_1 \\ \\ \vdots \\ \\ i_1 \end{array}$	2m 1m c 2i 1i		
Right Mandibul	ar, occlusal view	Left	

### **Formation and Eruption Assessments**

Complete all assessments unless you are absolutely certain that your individual presents demonstrative evidence of prenatal or postnatal age. If you have *any uncertainty* about the individual's age, complete all assessments. Refer to the manual as you complete this form.

Mineralization Stages (Sunderland et al. 1987) Applied to prenatal individuals only. Use the table below to assign a fetal age to the individual based on the oldest age in weeks post fertilization (wpf) for mineralized teeth that are recorded as "Present." Indicate your answers in the fields below.

	Presence/Absence		Tooth	15 <sup>th</sup> %	Range	
	LEFT	RIGHT	100th	(wpf):	(wpf):	
Maxilla			di1	15	13 – 17	
			di2	17	14 - 19	
			dc -	19	17 - 20	
			dm1	16	14 - 17	
			dm2	19	18 - 20	
Mandible			di1	15	13 - 17	
			di2	17	14 - 19	
			dc	19	17 - 20	
			dm1	16	14 - 17	
			dm2	19	18 - 20	

Unable to make a	ssessment due to	fertilization. Age Rar :	(missing) 🗌 Fragmei	ntation
Other:				<del></del>
Evaluate the crow molar from postn appropriate fields	n and root devel atal individuals. within the table	Indicate the appropria below.	nandibular canines, f te code and correspo	irst molar, and second onding age in the
		ion Stage Code		d Age (years)
Tooth	Left	Right	Left	Right
С				
1m				
2m				:
Unable to make a tooth in profile	ssessment due to ] Age likely fetal;	you were able to score :	entation 🔲 Unable t	
Instructions: Esti	mate the age of y	re following Ubelaker our subject lot by find the age estimation in	ing the image within	the MANUAL that best
Unable to make a	ssessment due to	hs Estimated Age Ra : ther:	_	mths

Eruption times (After Lysell et al. 1962, as presented in Scheuer & Black 2000:153)
Instructions: In the fields below, indicate whether a deciduous tooth is present or absent. Beneath the table, indicate the oldest mean age and age range given the teeth present.

	Tooth	Emerged past alveolar crest? (yes/no)	Mean (months)	Age Range +/- 1 SD (months)
	Central Incisor		10	8-12
	Lateral Incisor		11	9-13
Maxilla	Canine		19	16-22
	First Molar		16	13-19*
	Second Molar		29	25-33
	Central incisor		8	6-10
	Lateral incisor		13	10-16
Mandible	Canine		20	17-23
	First molar		16	14-18
	Second molar		27	23-31*

Мe	ean Age:	mths	Age range: _		+/-	- 1 SD
	nable to make ass Missing [] Frag		o: Inable to observe	tooth above a	lveolar crest. [	Other:
Es	timated Age, Co	ombined Nonm	<u>ietric Dental Ass</u>	sessment		
1)	Age Range: The given range an the non-metric	e final estimated d the oldest me dental age asse	d age range is the	youngest mea est age of a giv above.	ven age range d	erived from any of
						contrary evidence eonatal petrosa*).
	î ii	Age range: Contradictory o	de steological evide	rived from the	}	Method.
	you provid *Don't use d	ed information	in a. (immediate) collected within th Unit: fetal w	ly above), <i>do n</i> e non-metric de eeks/postnata	not use it for the ental assessment al months/post	natal year (circle).
	-		Unit: fetal w	eeks/postnata	al months/post	natal year (circle).
2)	mean score fro	m above when	ge of the oldest a only one exists. weeks / postnata			s or provide a single ircle one).
3)			ategory (below) i ry in the summar			erate following step form.
		Embryo (0-8 w Fetus (9 – 40 w Neonate (Birth Infant (Birth – 1 Toddler (1 – 2.4 Indeterminate	– 28 days) 11.9 months) 49 years)	months)	Date:	

### **OSTEOMETRIC AGE ASSESSMENT - FETAL**

**Note:** The following osteometric assessments are applicable only to individuals determined to be prenatal based on forgoing fusion and dental assessments. See MANUAL for instructions on collecting measurements as well as deriving age estimations.

<u>Cranial Measurements</u>	
Occipital: Pars lateralis and Pars basilaris	(Frazekas and Kosa 1978)

Element	Measurement name	Left (mm)	(mm)	Right (mm)	Age:
Pars lateralis	Maximum length		N/A		
Pars Basilaris	Maximum Width (MW)	N/A	11.29	N/A	32 fw
	Sagittal Length (SL)	N/A	10.98	N/A	32 fw

<sup>\*</sup>If you were unable to collect any measurements, indicate the reason below: **Age estimation from pars basilaris (Scheuer and MacLauighlin-Black 1994).**The Pars Basilaris MW measurement value (above) is

Larger than the SL measurement value → then ≥ 30 fetal weeks
 Smaller than the SL measurement value → then ≥ 28 fetal weeks
 Not applicable; unable to collect data due to:

Sphenoid (Fazekas & Kosa 1978)

Measurement name	Left (mm)	Centerline (mm)	Right (mm)	Fetal Age	*Not measured?
Body –Length (BL)	N/A	7.82	N/A	20 f W	
Body – Width (BW)	N/A		N/A		
Lesser Wing- Length (LWL)		N/A			
Lesser Wing- Width (LWW)		N/A			
Greater Wing -Length (GWL)		N/A			
Greater Wing - Width		N/A			
(GWW)					

Temporal (Fazekas & Kosa 1978)

	Left (mm)	Right (mm)	Fetal Age	*Not measured?
Petrous - Length	28.39/20.72	28.75	L 32-3Y / 32 fw	
Petrous - Width	14.86/-	15.15	34 fw	

Mandible, Maxilla, and Zygoma (Fazekas & Kosa 1978)

	Left (mm)	Right (mm)	Fetal Age	*Not
				measured?
Mandible –Length				
Mandible – Width				
Mandible – Oblique length				
Maxilla –Length				
Maxilla – Height				
Maxilla – Width				
Zygomatic- Length				
Zygomatic – Oblique Height				

*Place a '✓' in the far right columns of tables to indicate any measurements you were unable to	
collect. If you need more writing space, please use the comments section on p. 5	
Lot: Date:	

# Postcranial Measurements

Same elemont

Shoulder elements and upper limbs (Fazekas & Kosa 1978)

Measurement name	Left (mm)	Right (mm)	Fetal Age	*Not measured?
Clavicle- Length				
Scapula -Length (height)				
Scapula – Width				
Scapula – Length of the Spine				
Humerus – Length (height)	49.72		30 fw	
Humerus – Distal Width	12.28		30 FW	
Radius – Length				
Ulna – Length				

Measurement name	Left (mm)	Right (mm)	Fetal Age	*Not measured?
Maximum iliac length		25.80	32 fW	
Maximum iliac width		23.26	32 f w	
Maximum ischium length				
Maximum ischium width				
Maximum length of pubis				
Femur maximum length	53.82		30 fW	
Femur distal width				
Tibia maximum length		48.05	30-32 fW	
Fibula maximum length				

<sup>\*</sup>Place a '\' in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

### **COMMENTS:**

complete sphenoid post body

# OSTEOMETRIC AGE ASSESSMENT - POSTNATAL through 2.49 years

<u>Note:</u> The following osteometric assessments are applicable only to individuals with ages determined via fusion and dental assessments to be postnatal through 2.49 years of age. Methods follow Maresh (1970).

Element	Left (mm)	Epiphysis included?	Age:	NM*	Right (mm)	Epiphysis included?	Age:	NM*
Humerus								
Radius								
Ulna								
Femur								
Tibia	,							
Fibula								

<sup>\*</sup>NM indicates Not measured. Place a '\sqrt{'} in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

### **Comments:**

Eat	timated Age Combined esteematuis
	Age Range: The final estimated age range is the youngest mean age or the youngest age of a given range and the oldest mean age or the oldest age of a given age range derived from the osteometric assessments above. Indicate this data in the fields below and in the summary section on page one of your form.  Unit: fetal weeks/postnatal months/postnatal year (circle).  Unit: fetal weeks/postnatal months/postnatal year (circle).
2)	Mean Age: Calculate the mean of the ages you provided in the age range (above) or provide a single mean age when only one exists.  Unit: fetal weeks/postnatal months/postnatal year (circle).
3)	Select the age category (below) into which the value you generated following step 2) fits. Select the same category in the summary section on page one of your form.    Embryo (0-8 weeks or two lunar months)   Fetus (9 - 40 weeks)   Neonate (Birth - 28 days)   Infant (Birth - 1 year)   Toddler (1 - 2.49 years)   Indeterminate

Juvenile Age Assessment Part I – FUSION Prenatal to Childhood Altenburg Lutheran Church Society Cemetery BOZ0009/CU584/Collection's Location: UWM-ARL	Burial No. 2
Observer Name: A.M.J. + J. 1. B. Date Started	d: 10/12/14 Date Completed: 10/12/14
SUMMARY AGE Category:  ☐ Prenatal (Prenatal – 2.49 y) ☐ Early Childhood (2.5 – 5.9 y) ☐ I  AGE RANGE: fw / pn m/ pn y to fw  * 'fw' fetal weeks; 'pn m' postnatal months; 'pn y' postnatal years.	Late Childhood (6-12.9 y)

# **FUSION OF OSSIFICATION CENTERS**

Use the Manual when completing this form. Record fusion data using the following codes: 0 = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when the feature is not observable.

Element	Primary Elements	Observation Code:	Fusion Complete
Sphenoid	Lesser Wings to Sphenoid Body	F	5 fm
_	Pre Sphenoid to Post Sphenoid Body	F	8 fm
	Greater Wings to Sphenoid Body	F	1 y
	Foramen Ovale (Greater Wing)	F	1 y
Temporal	Tympanic Ring to Temporal Squamous	F	35 fw
-	Petromastoid to Squamotympanic	F	1 y
Occipital	Supra-occipital to Interparietal Squama	_	5 fm
~	Superior Median Fissure	_	1 y
	Sutura Mendosa	-	1 y
	Partes Laterales to Squama	-	1 – 3 y
	Hypoglossal Canal (Pars Laterales)	u	2 – 4 y
	Partes Laterales to Pars Basilaris	0	5 – 7 y
Mandible	Mandibular Symphysis	F	1 y
	Coronoid to main mass	F	By 8 f wks
Frontal	Fusion of L and R frontals	F	9 fm - 2 y
	Metopic Suture obliterated (generally)	u	2 – 4 y
Vertebrae	C1 - R & L Posterior arches (to one another)	0	4 – 5 y
	C1- Anterior arch to anterior bars	0	5 – 6 y
	C2- Intradental union (becomes Dens)	F	Full term
	C2- R & L Neural Arches (to one another)	0	3 <b>-</b> 4 y
	C2- Dens to Neural Arch	6	3 – 4 y
	C2- Centrum to Neural Arch	6	4 – 6 y
•	C2- Ossiculum Terminale of dens	0	12 y
	C3-L5 Neural Arches (to one another)	F	1 – 2 y
	C3-L5 Neural Arches to Centra	0	2 – 5 y
Sacrum	Lateral Elements to Neural Arches → 'Wings'	0	2 – 5 y
(S1 and S2)	Wings to Centra	0	2 – 6 y
Os coxa	Ischiopubic ramus	0	5 – 11 y
Humerus	Greater and Lesser Tubercles to Head	0	2-6y

<sup>\*&#</sup>x27;f m' indicates 'fetal month'; 'f wks' indicates 'fetal weeks'; 'm' indicates post natal months; and 'y' indicates postnatal years.

### Estimated Age

Step 1) Age Range.

Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with 'O' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.

2-5

fetal weeks / postnatal months / postnatal years (circle unit)

1-2

fetal weeks / postnatal months / postnatal years (circle unit)

 $\square$  Indeterminate; i.e. no evidence to allow you to assign the individual to an age category. Procede to step 3.

Step 2) If you were able to provide an age range in step 1, skip this step and procede to step 3. If you selected 'indeterminate' in step 1 but your individual includes other evidence to allow you to assign the individual to an age category, indicate the information and the estimated age below. (e.g. petros portion compares favorably to individual 20 fetal weeks old). Then, use this information to select a categorical age in step 3.

Step 3) Age Category:

If you provided an age range in step 1, calculate the mean from of the ages and use the value to select an age category below.

Alternatively, if you arrived at step 3 following the directions in step 2, to proceed to assign your individual to an age category below based on the data you provided in step 2.

- Prenatal 2.5 years (Prenatal 2.49 years)
- Early Childhood (2.5 5 years)
- Late Childhood (6 12 years)
- Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

### **Comments:**

v 1-2

# **JUVENILE AGE ASSESSMENT PART II form:**

Prenatal - 2.5 years (LMP - 2.5 years)

☐ Early Childhood (2.5 – 5 years)

☐ Late Childhood (6 – 12 years)

☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

<sup>\*</sup>Remember to indicate the age range in the summary section on the top of page 1 of this form.

Juvenile Age Assessment Part II- Prenatal – 2.49 years Altenburg Lutheran Church Society Cemetery BOZ0009/CU584/Collection's Location: UWM-ARL	Burial No. <u>7</u>
Observer Name: A.M.J. + J.I.B. Date Started: 10 Date Completed	12/14
SUMMAN  Dental Age: Age range: - fw/pn m / pn y  Sub-age Category: Embryo Fetus Neonate  Osteometric Age: Age range: ≥ - fw/pn m / pn y  Sub-age Category: Embryo Fetus Neonate  * 'fw' fetal weeks; 'pn m' postnatal months; and 'pn y' post	e ☐ Infant ☐ Toddler ☐ Indeterminate ☐ Indeterminate ☐ ☑ Indeterminate ☐ ☐ Indeterminate
NON-METRIC DENTAL Use and attach a Juvenile mixed dentition outline if that form Mandible not present. Maxilla not present.	m is more appropriate for your subject lot.
$\begin{matrix} & & & \\ $	1i 2i  c  1m  2m  1M Illustration Key:
Right Maxilla	● Articulated Tooth  a, occlusal view Left ○ Loose Tooth
	X Missing Tooth
$\begin{array}{c} M_1 \\ \\ m_2 \\ \\ m_1 \end{array}$	1M 2m 1m c 2i 1i
Right Mandibula	ar, occlusal view Left

### **Formation and Eruption Assessments**

Complete all assessments unless you are absolutely certain that your individual presents demonstrative evidence of prenatal or postnatal age. If you have *any uncertainty* about the individual's age, complete all assessments. Refer to the manual as you complete this form.

Mineralization Stages (Sunderland et al. 1987) Applied to prenatal individuals only. Use the table below to assign a fetal age to the individual based on the oldest age in weeks post fertilization (wpf) for mineralized teeth that are recorded as "Present." Indicate your answers in the fields below.

	Presence/Absence		Tooth	15 <sup>th</sup> %	Range
	LEFT	RIGHT	10001	(wpf):	(wpf):
Maxilla			di1	15	13 - 17
			di2	17	14 - 19
			dc	19	17 - 20
			dm1	16	14 - 17
			dm2	19	18 - 20
Mandible			di1	15	13 – 17
			di2	17	14 - 19
			dc	19	17 – 20
			dm1	16	14 – 17
			dm2	19	18 - 20

1 0		fertilization. Age Kar	9	-
Unable to make as	ssessment due to stnatal: evidence	:	missing) 💹 Fragmei	itation
		e <b>s et al. 1963)</b> Applies		als. irst molar, and second
		Indicate the appropria		
appropriate fields			*	0 0
Mandibular	Format	ion Stage Code	Estimate	d Age (years)
Tooth	Left	Right	Left	Right
С				
1m				
2m				
Unable to make a	ssessment due to	you were able to score :	entation 🔲 Unable t	
-				
Formation and e Instructions: Esti	ruption sequence mate the age of y	e following Ubelaker	(1989) ing the image within	the MANUAL that best
Estimated Age: Unable to make a Missing Fra	ssessment due to		nge:	mths

# Eruption times (After Lysell et al. 1962, as presented in Scheuer & Black 2000:153)

Instructions: In the fields below, indicate whether a deciduous tooth is present or absent. Beneath the table, indicate the oldest mean age and age range given the teeth present.

	Tooth	Emerged past alveolar crest? (yes/no)	Mean (months)	Age Range +/- 1 SD (months)
	Central Incisor		10	8-12
	Lateral Incisor		11	9-13
Maxilla	Canine		19	16-22
	First Molar		16	13-19*
	Second Molar		29	25-33
	Central incisor		8	6-10
	Lateral incisor		13	10-16
Mandible	Canine		20	17-23
	First molar		16	14-18
	Second molar		27	23-31*

Mea	an Age:	mths	Age range:	_	+/- 1 5	SD
	able to make ass Missing [ ] Fragr		able to observe to	ooth above alve	olar crest. 🔲 0	ther:
<u>Est</u>	imated Age, Co	mbined Nonme	etric Dental Asse	<u>ssment</u>		
1)	given range and the non-metric	the oldest mea dental age asses	age range is the y n age or the oldes sment methods a	t age of a given bove.	age range deriv	ved from any of
	osteological	evidence? If so,	nent disagree ma indicate the age : 18 – 20 week min	range, the asses	sment, and con	trary evidence
	i. A ii. C	ge range: ontradictory os	deri teological eviden	ved from the ce:		Method.
	you provide	ed information in ta besides that co		above), do not u	use it for the age al assessment for anonths/postnata	e range (below). the age range. al year (circle).
2)	mean score from	n above when o	e of the oldest and	l youngest mear	n age scores or	provide a single
3)			egory (below) int in the summary			
		Setus (9 – 40 we Veonate (Birth – nfant (Birth – 11 Coddler (1 – 2.49	28 days) 1.9 months)		Date:	

### **OSTEOMETRIC AGE ASSESSMENT - FETAL**

**Note:** The following osteometric assessments are applicable only to individuals determined to be prenatal based on forgoing fusion and dental assessments. See MANUAL for instructions on collecting measurements as well as deriving age estimations.

Cranial Measure			000 000				
Occipital: Pars la		ırs basilar	is (Frazekas a	nd Kosa 19	78)		٠
Element	Measuremen	Annual Control of the	Left (mm)	(mm)	CONTRACTOR OF THE PROPERTY OF THE PARTY OF T	ght (mm)	Age:
Pars lateralis	Maximum ler	ngth		N/A			
Pars Basilaris	Maximum W	idth	N/A		N,	/A	
	Sagittal Leng	th (SL)	N/A		N,	/A	
*If you were unal	ole to collect an	y measure	ments, indicate	the reason	belov	w:	
Age estimation for The Pars Basilaries Larger than the Smaller than t	s MW measure	ment value ient value	(above) is → the	<b>auighlin-B</b> a n ≥ 30 fetal n ≤ 28 fetal	week	S	
Not applicable	e; unable to coll	ect data du	e to:				
Sphenoid (Fazek	as & Kosa 197	·R)		•			
Measurement	Participation and the Control of the	Left (mm	Centerline (mm)	e Right (	mm)	Fetal Age	*Not measured?
Body –Length (	(BL)	N/A		N/A			
Body - Width (		N/A		N/A			
Lesser Wing- L	· · · · · · · · · · · · · · · · · · ·	,	N/A				
Lesser Wing- V			N/A				
Greater Wing -	-Length (GWL)		N/A				
Greater Wing - (GWW)			N/A				
Temporal (Fazel	kas & Kosa 19'	78)					
Temperar (1 azes	1888	Left (mm)	Right (mm)	Fetal Age		9947.	*Not measured?
Petrous - Leng	th						
Petrous - Widt							
Mandible, Maxili	la. and Zvaome	a (Fazekas	& Kosa 1978)				
		:	Left (mm)	Right (n	nm)	Fetal Age	*Not
						1	measured?
Mandible -Len	gth						
Mandible - Wi							
Mandible - Ob	lique length						
Maxilla -Lengt	h						
Maxilla - Heigl	nt						
Maxilla – Widt	h						
Zygomatic- Lei							
Zygomatic - Ol							
<u>*Place a '√' in the</u>							<u>nable to</u>
collect. If you nee	d more writing	space, plea	se use the comi	<u>nents sectio</u>	nong	<u>. 5</u>	

Date: \_\_\_\_\_

**Postcranial Measurements** 

Shoulder elements and upper limbs (Fazekas & Kosa 1978)

Measurement name	Left	Right	Fetal Age	*Not
	(mm)	(mm)		measured?
Clavicle- Length				
Scapula –Length (height)				
Scapula – Width				
Scapula – Length of the Spine				
Humerus – Length (height)				
Humerus – Distal Width				
Radius – Length				
Ulna – Length				

Pelvic elements and lower limbs (Fazekas & Kosa 1978)

Measurement name	Left (mm)	Right (mm)	Fetal Age	*Not measured?
Maximum iliac length				
Maximum iliac width				
Maximum ischium length				
Maximum ischium width				
Maximum length of pubis				
Femur maximum length				
Femur distal width				
Tibia maximum length				
Fibula maximum length				

<sup>\*</sup>Place a ' $\checkmark$ ' in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

### **COMMENTS:**

# OSTEOMETRIC AGE ASSESSMENT - POSTNATAL through 2.49 years

Note: The following osteometric assessments are applicable only to individuals with ages determined via fusion and dental assessments to be postnatal through 2.49 years of age. Methods follow Maresh (1970).

Element	Left (mm)	Epiphysis included?	Age:	NM*	Right (mm)	Epiphysis included?	Age:	NM*
Humerus								
Radius								
Ulna								
Femur	,				147.96	7	IY	
Tibia					11111	, ,	-	
Fibula								

<sup>\*</sup>NM indicates Not measured. Place a '√' in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

### **Comments:**

Estimated Age,	Combined	osteometric
Doctiffacture Tige,	COMBUILD	USICUIIICU IC

Est	timated Age, Combined osteometric
	Age Range:  The final estimated age range is the youngest mean age or the youngest age of a given range and the oldest mean age or the oldest age of a given age range derived from the osteometric assessments above. Indicate this data in the fields below and in the summary section on page one of your form.  Unit: fetal weeks/postnatal months/postnatal year (circle).
	Unit: fetal weeks/postnatal months/postnatal year (circle).
2)	Mean Age: Calculate the mean of the ages you provided in the age range (above) or provide a single mean age when only one exists.  Unit: fetal weeks/postnatal months/postnatal year (circle).
3)	Select the age category (below) into which the value you generated following step 2) fits. Select the same category in the summary section on page one of your form.    Embryo (0-8 weeks or two lunar months)   Fetus (9 – 40 weeks)   Neonate (Birth – 28 days)   Infant (Birth – 1 year)   Toddler (1 – 2.49 years)   Indeterminate

Age, Sex, and Stature Recording Form -	ADULT	Burial No. 3	
Altenburg Lutheran Church Society Cemetery			
BOZ0009/CU584/Collection's Location: UWM –AR	L&Curatorial Facility		
Observer Name: A.M.J. + J.I.B Date: 3			
SUMMARY DATA: Sex (non-metric): ☐ Female		🗴 Ind.Sex 🗆 Probable Male 🗆	] Male
Sex (osteometric): □Female	□ Ind.Sex 🗷 Male		
Cat. Age: Juvenile (<20 yrs) Young Adult (20-3 Age Range: 24 - 82 years Max Femur Length	5 yrs) 🗷 Mid. Adult (35- gth:mm Ma	50 yrs) □Old Adult (50+ yrs) □ x Tibia Length:m m	
Estimated Sex	6 1 10 61		n 15 15
Non-metric cranial and postcranial observation			
Pelvis L Ventral Arc (1-3 or -)	R Skull		M R <b>4</b>
Subpubic Concavity (1-3 or -)		ocess (1-5 or -)	
Ischiopubic Ramus Ridge (1-3 or -)		al Margin (1-5 or -)	<u> </u>
Greater Sciatic Notch (1-5 or -)	<b>5</b> Glabella (1		4
Preauricular Sulcus (0-4 or -)		inence (1-5 or -)	<u> </u>
Estimated Sex, Pelvis (0-5):		imated Sex, Skull (0-5): 3	
See p.p. 23-24 for instructions on esting	nating sex of the pelvi	s.	
See p. 2	8 for instructions on	estimating sex of Skull.	
See p. 29 for instructions to derive Estimated	Sex, Combined score l	oased on non-metri <u>c observ</u> at	ions.
Estimated Sex, Combined score based on non-n	petric observations (0-	5): 3	>
Indicate the estimated (non-metric) sex in the	summary section on	the top of this page.	
		piguous 4-probable male	5-male
•		- I	
Osteometric data:	60 00 C N	G (	
Maximum length of Talus: <u>58.5</u> mm Side measured:   XLeft ← Preferred	(Accuracy 80 % following	Gentry-Steele (1978))	
,		nce 🗆 fragmentation 🗆 patho	logy
☐ Unable to score left		ice in magnitudation in patito	1063
Estimated Sex: ☐ Female (Max length ≤ 51 m	0		
Male (Max length ≥ 52 mm)			
Vertical diameter of the humeral head 48.4		(Accuracy of 73 – 82% (Spradley & J	onter 2011.2041)
Side measured:   XLeft ← Preferred		(Accuracy of 75 – 62% (Spraciey & )	antz 2011:294))
		nce 🗆 fragmentation 🗆 patho	logy
☐ Unable to score left		ree in rugmentation in patrio	106)
Estimated Sex:  Female (<43 mm)			
☐ Indeterminate (44 – 46 mm	1)		
XMale (>47 mm) €			
Maximum diameter of the femoral head	mm	1 (Accuracy of 88% (Spradley & Jantz 2	2011:294))
Side measured: □Left ← Preferred s		(,,	
1 '	ore left due to: □absei	nce 🗆 fragmentation 🗆 patho	logy
☑Unable to score left			
Estimated Sex: ☐ Female (<42.5 mm)☐ Inde		•	- 47.5 mm)
Probable female (42)			ale (>47.5 mm)
Estimated Sex, Combined Osteometric: Com			•
dashed boxes above. Given incongruous results, consider the rank order of accuracy: 1) max diameter of femoral			
head, 2) Max length of talus, and 3) vertical di			
summary data area on the top of this page.		`	-
Estimated Sex: □Female	□Indetermin	nate 🔀 Male	

<b>Estimated Age</b> <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)			
Suchey-Brooks (0-6) [Scores for □Female OR □Male]  L: R: Based on Stage table in, Average Age: Range: □Check box if casts used. □Unable to score due to pelvis of indeterminate sex □Unable to score due to:			
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:			
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc.)  Stage: Mean Age: Range: 24 82  X *Scored Right side because left is: □ absent 为 fragmented □ pathological □ other: □ Unable to score left or right because both are □ absent □ fragmented □ pathological □ other: □			
<u>Cranial Suture Closure (Use left side when possible**)</u> - = Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration For any region where <i>all</i> cranial sutures are unobservable, check the box next to region heading.			
External Cranial Vault Unobservable  1. Midlambdoid 2. Lambda 3. Obelion 4. Anterior Sagittal 5. Bregma 6. Midcoronal 7. Pterion 8. Sphenofrontal 9. Inferior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 11. Incisive 12. Anterior Median Palatine 13. Posterior Median Palatine 13. Posterior Median Palatine 14. Transverse Palatine 14. Transverse Palatine 15. Sagittal 16. Left Lambdoid 17. Left Coronal 17. Left Coronal 18. Superior Sphenotemporal 19. Inferior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 11. Incisive 12. Anterior Median Palatine 13. Posterior Median Palatine 14. Transverse Palatine 15. Sagittal 16. Left Lambdoid 17. Left Coronal 17. Left Coronal			
**Indicate sutures (by number) you scored on the right side when scoring left was not possible:			
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form). Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate. Estimated Age:  ☐ Juvenile (<20 years) ☐ Young Adult (20-35 years) ☐ Middle Adult (35-50 years) ☐ Indeterminate adult			
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores.  ズ cranial suture and auricular surface scores due to missing pubic symphyses. □ only cranial suture scores due to missing pelvis. □ other:			

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur 470 mm	
Side measured: ズLeft ← Preferred standard	
$\square$ Right $_{ullet}$ unable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology	
□Unable to score left or right due to:	
Maximum length of the tibia <u>564.5</u> mm  Side measured: X Left ← Preferred standard  □ Right. unable to score left due to: □ absence □ fragmentation □ pathology  □ Unable to score left or right due to:	

### **Comments Section:**

1988 inventory lists partial R symphyseal face. This was not located in 2014.

Age, Sex, and Stature Recording Form - ADULT	Burial No. 4
Altenburg Lutheran Church Society Cemetery	
BOZ0009/CU584/Collection's Location: UWM -ARL&Curatorial Facility	
Observer Name: A.M.J. + J. 1. B. Date: 3/12/14	
SUMMARY DATA: Sex (non-metric):  Female Probable Female	🗙 Ind.Sex 🗆 Probable Male 🗆 Male
Sex (osteometric): ☐Female of Ind.Sex ☐Male  Cat. Age: ☐Juvenile (<20 yrs) ☐Young Adult (20-35 yrs) ☐Mid. Adult (35-  Age Range: NA years	50 yrs) □Old Adult (50+ yrs) <b>X</b> Indeter. Adult x <b>Tibia Length:</b> NA m
Estimated Sex	
Non-metric cranial and postcranial observations: Complete while follows:	lowing instructions listed in The Manual).
Pelvis L R Skull	L M R
	st (1-5 or) <b>3</b>
	ocess (1-5 or -) <u>2</u> <u>3</u>
Ischiopubic Ramus Ridge (1-3 or -) Supraorbita	al Margin (1-5 or -) <u>3</u> <u>3</u>
Greater Sciatic Notch (1-5 or -)2 Glabella (1-	
• • • • • • • • • • • • • • • • • • • •	inence (1-5 or -)
	imated Sex, Skull (0-5): <u>3</u>
See p.p. 23-24 for instructions on estimating sex of the pelvi	
See p. 28 for instructions on e	
See p. 29 for instructions to derive Estimated Sex, Combined score b	based on non-metric observations.
Estimated Sex, Combined score based on non-metric observations (0-5 Indicate the estimated (non-metric) sex in the summary section on	the top of this page.
0-Indeterminate 1-female 2-probably female 3-amb	oiguous 4-probable male 5-male
Osteometric data:  Maximum length of Talus:mm  (Accuracy 80 % following 0 Side measured: Left ← Preferred standard	nce $\square$ fragmentation $\square$ pathology
Vertical diameter of the humeral head mm	(Accuracy of 73 - 82% (Spradley & Jantz 2011:294))
Side measured: ☐ Left ← Preferred standard	
☐ Right• unable to score left due to: ☐abser	
☐ Wunable to score left or right due to: <b>fra</b>	gmentation
Estimated Sex: Female (<43 mm)	•
$\Box \text{ Indeterminate (44 - 46 mm)}$	
□Male (>47 mm)	
	(Accuracy of 88% (Spradley & Jantz 2011:294))
Side measured: ☐Left ← Preferred standard	
☐ Right• unable to score left due to: ☐abser	ice $\square$ fragmentation $\square$ pathology
☑Unable to score left or right due to:fra	gmentation
Estimated Sex: $\square$ Female (<42.5 mm) $\square$ Indeterminate (43.5 – 46.5 $\square$ Probable female (42.5 – 43.5 mm)	5 mm) □Probable Male (46.5 – 47.5 mm) □Male (>47.5 mm)
<b>Estimated Sex, Combined Osteometric:</b> Combined estimated is sex	
dashed boxes above. Given incongruous results, consider the rank of	
, head, 2) Max length of talus, and 3) vertical diameter of humeral he	ad. Indicate the estimated (metric) sex in the
summary data area on the top of this page.  Estimated Sex:    Sex:     Female   Mindetermin	
Estimated Sex:	ate

<b>Estimated Age</b> <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively.	ctively)
Suchey-Brooks (0-6) [Scores for □Female OR □Male]  L: R: Based on Stage table in, Average Age: Range: □Check box if casts used. □Unable to score due to pelvis of indeterminate sex □Unable to score due to:	<del></del>
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:  ☐ Unable to score due to: Fragmen + a+1 on	<u> </u>
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, patho Stage:	logical, etc.)
Cranial Suture Closure (Use left side when possible**)  -= Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration  For any region where all cranial sutures are unobservable, check the box next to region heading.	on
External Cranial Vault Unobservable  1. Midlambdoid	alatine e
**Indicate sutures (by number) you scored on the right side when scoring left was not possible: Indicate sutures (by number) you were unable to observe and why: completely f	ragmented
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of Select the most appropriate age category based on all age data collected. However, when pubic symptocranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate.  Estimated Age:  Juvenile (<20 years)  Young Adult (20-35 years)  Indeterminate adult	hysis and
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores. □ cranial suture and auricular surface scores due to missing pubic symphyses. □ only cranial suture scores due to missing pelvis.  ▼ other:	<u>.</u> .

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur mm  Side measured: □ Left ← Preferred standard □ Right. unable to score left due to: □ absence □ fragmentation □ pathology  ☐ Unable to score left or right due to:fragmen to tion		
Maximum length of the tibia mm  Side measured: □ Left ← Preferred standard □ Right. unable to score left due to: □ absence □ fragmentation □ pathology ☑ Unable to score left or right due to: _ fvagmentation		
Comments Section: Remains very fragmented. Greater Sciatic notch fragment unable to be sided.		

Age, Sex, and Stature Recording Form - ADULT	Burial No. 5
Altenburg Lutheran Church Society Cemetery	
BOZ0009/CU584/Collection's Location: UWM -ARL&Curatorial Facility	
Observer Name: A.M.J. + J.1.8. Date: 3/12/14	
SUMMARY DATA: Sex (non-metric): ☐ Female 🕱 Probable Female [	☐ Ind.Sex ☐ Probable Male ☐ Male
Sex (osteometric): □Female X Ind.Sex □Male	
Cat. Age: □Juvenile (<20 yrs) □Young Adult (20-35 yrs) □Mid. Adult (35-Age Range: NA years Max Femur Length: NA mm Max	50 yrs) □Old Adult (50+ yrs) XIndeter. Adult x Tibia Length: NA mm
Estimated Sex	
Non-metric cranial and postcranial observations: Complete while follows:	lowing instructions listed in The Manual).
Pelvis L R Skull	L M R
Ventral Arc (1-3 or -) Nuchal Cre	st (1-5 or)
Subpubic Concavity (1-3 or -) Mastoid Pro	ocess (1-5 or -) <u>2</u> <u> </u>
	al Margin (1-5 or -)
Greater Sciatic Notch (1-5 or -) Glabella (1-	
· · · · · · · · · · · · · · · · · · ·	
, ( , <del></del>	imated Sex, Skull (0-5):
See p.p. 23-24 for instructions on estimating sex of the pelvi	
See p. 28 for instructions on e	
See p. 29 for instructions to derive Estimated Sex, Combined score b	pased on non-metri <u>c observations.</u>
Estimated Sex, Combined score based on non-metric observations (0-5	5): <b>2</b>
Indicate the estimated (non-metric) sex in the summary section on	the top of this page.
	piguous 4-probable male 5-male
Apple State of the Control of the Co	
Osteometric data:	
Maximum length of Talus:mm (Accuracy 80 % following 6	Gentry-Steele (1978))
Side measured: ☐ Left ← Preferred standard	
☐ Right• unable to score left due to: ☐ abser	
☑ Unable to score left or right due to: <b>fra</b>	gmentation
Estimated Sex: ☐ Female (Max length ≤ 51 mm) ☐ Male (Max length ≥ 52 mm)	
Vertical diameter of the humeral head mm	(Accuracy of 73 – 82% (Spradley & Jantz 2011:294))
Side measured: ☐ Left ← Preferred standard	
☐ Right. unable to score left due to: ☐abser	
Munable to score left or right due to: <u>fya</u>	gmentation
Estimated Sex: □Female (<43 mm)	· ·
$\Box \text{ Indeterminate (44 - 46 mm)}$	
□Male (>47 mm)	
Maximum diameter of the femoral head mm	(Accuracy of 88% (Spradley & Jantz 2011:294))
Side measured: $\Box$ Left $\leftarrow$ Preferred standard	
☐ Right• unable to score left due to: ☐abser	
ŬUnable to score left or right due to: <b>fra</b>	gmentation
Estimated Sex: $\square$ Female (<42.5 mm) $\square$ Indeterminate (43.5 – 46.5	5 mm) □Probable Male (46.5 – 47.5 mm)
$\square$ Probable female (42.5 – 43.5 mm)	□Male (>47.5 mm)
<b>Estimated Sex, Combined Osteometric:</b> Combined estimated is sex	
dashed boxes above. Given incongruous results, consider the rank of	
, head, 2) Max length of talus, and 3) vertical diameter of humeral he	ad. Indicate the estimated (metric) sex in the
summary data area on the top of this page.	
Estimated Sev.   Female   Mindetermin	ate Male

<b>Estimated Age</b> <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR □Male]  L: R: Based on Stage table in, Average Age: Range:  □Check box if casts used. □Unable to score due to pelvis of indeterminate sex  ☑Unable to score due to:
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:  ZUnable to score due to: _fragmen_tation
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc.)  Stage: Mean Age: Range:  "*Scored Right side because left is: □ absent □ fragmented □ pathological □ other:  "Unable to score left or right because both are □ absent 🏋 fragmented □ pathological □ other:
<u>Cranial Suture Closure (Use left side when possible**)</u> -= Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration For any region where <i>all</i> cranial sutures are unobservable, check the box next to region heading.
External Cranial Vault ☐ Unobservable  1. Midlambdoid ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
**Indicate sutures (by number) you scored on the right side when scoring left was not possible:
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form). Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate. Estimated Age:  ☐ Juvenile (<20 years) ☐ Young Adult (20-35 years) ☐ Middle Adult (35-50 years) ☐ Old Adult (50+ years) ☐ Indeterminate adult
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores. □ cranial suture and auricular surface scores due to missing pubic symphyses. ▼ only cranial suture scores due to missing pelvis. □ other:

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur	mm	
Side measured: □ Left	← Preferred standard	
□ Right•	unable to score left due to	$\square$ absence $\square$ fragmentation $\square$ pathology
➤Unable	to score left or right due	to: fragmentation
		<b>V</b>
Maximum length of the tibia	mm	
Side measured: 🗆 Left	← Preferred standard	
□ Right•	unable to score left due to	o: $\square$ absence $\square$ fragmentation $\square$ pathology
🛛 Unable	to score left or right due	to: fragmentation

**Comments Section:** 

Age, Sex, and Stature Recording Form -	ADULT	Burial No	
Altenburg Lutheran Church Society Cemetery			
BOZ0009/CU584/Collection's Location: UWM -AR	L&Curatorial Facility		
Observer Name: A.M.J. + J.I. & Date: 3	3 12 14		
SUMMARY DATA: Sex (non-metric):  Female	Probable F emale	□ Ind.Sex □ Probable Male □ Male	
Sex (osteometric): ☐ Female Cat. Age: ☐ Juvenile (<20 yrs) X Young Adult (20-3 Age Range: ∠ - 27 years Max Femur Len	35 yrs) □Mid. Adult (35	-50 yrs) □0ld Adult (50+ yrs) □Indeter. Adult x Tibia Length: <u>363</u> mm	
Preauricular Sulcus (0-4 or -)  Estimated Sex, Pelvis (0-5): 3  See p.p. 23-24 for instructions on estimated Sex.	R Skull Nuchal Cre Mastoid Pr Supraorbit Glabella (1 O Mental Em Est mating sex of the pelvices for instructions on Sex, Combined score interic observations (0-	L M R est (1-5 or -) rocess (1-5 or -) tal Margin (1-5 or -) tinence (1-5 or -) timence (1-5 or -) timence (1-5 or -) tis. estimating sex of Skull. based on non-metric observations.	
0-Indeterminate       1-female       2-probably female       3-ambiguous       4-probable male       5-male         Osteometric data:         Maximum length of Talus:			
Vertical diameter of the humeral head Side measured: □ Left ← Preferred □ Right• unable to score left Unable to score left □ Estimated Sex: □ Female (<43 mm) □ Indeterminate (44 – 46 mm □ Male (>47 mm)	ore left due to: □abser or right due to: <b>_£ra</b>	nce $\square$ fragmentation $\square$ pathology	
Maximum diameter of the femoral head  Side measured: □ Left ← Preferred so □ Right• unable to score left ✓ Unable to score left	standard ore left due to: □abse	n (Accuracy of 88% (Spradley & Jantz 2011:294))  nce   fragmentation   pathology  mentation	
Æstimated Sex: □ Female (<42.5 mm)□ Inde □ Probable female (42	terminate (43.5 – 46. 2.5 – 43.5 mm)	5 mm) □Probable Male (46.5 – 47.5 mm) □Male (>47.5 mm)	
Estimated Sex, Combined Osteometric: Comdashed boxes above. Given incongruous result head, 2) Max length of talus, and 3) vertical dissummary data area on the top of this page.  Estimated Sex: □Female	ts, consider the rank o	order of accuracy: 1) max diameter of femoral ead. Indicate the estimated (metric) sex in the	

<b>Estimated Age</b> <u>Pubic Symphysis</u> (Score left and right sides by indicated as a side of the side of	cate score in lines following	g 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR □IL: R: Based on Stage table in, Av □Check box if casts used. □Unable to score due XUnable to score due to:	verage Age:to pelvis of indeterminate s	sex
Todd (1-10) [use ONLY for illiae of indeterminat L: R: Based on Stage table in SO \(\mathbb{U}\) Unable to score due to: \(\frac{\	P, Average Age:	
Auricular Surface (Score left side only except* in constage: Mean Age: I	Range: $\angle$ 27 fragmented $\Box$ pathological labsent $\Box$ fragmented $\Box$ pa	other: thological □other:
For any region where <i>all</i> cranial sutures are unobsetternal Cranial Vault Unobservable  1. Midlambdoid 2. Lambda 3. Obelion	ge: Avg:  Ilt Composite Score  Stage: Avg:	
**Indicate sutures (by number) you scored on the Indicate sutures (by number) you were unable to		
Estimated Age, Combined: (indicate the estimate Select the most appropriate age category based or cranial suture scores provide divergent age estimate Estimated Age:    Juvenile (<20 years)	n all age data collected. How tes, defer to the pubic symph 0-35 years)	vever, when pubic symphysis and nysis age estimate. dle Adult (35-50 years)

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur	427 mm
Side measured: 🔀 Left	← Preferred standard
☐ Right•	unable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology
□Unable	to score left or right due to:
O	

# **Comments Section:**

Age, sex, and statute Recording Form - ADULT Altenburg Lutheran Church Society Cemetery  B020009/CU584/Collection's Location: UWM - ARL&Curatorial Facility  Doserver Name: A, M. J. + J.), B. Date: 3/19/14  SUMMARY DATA: Sex (non-metric): □ Female M Frobable Female □ Ind.Sex □ Probable Male □ Male Sex (osteometric): □ Female M Ind.Sex □ Probable Male □ Male Sex (osteometric): □ Female M Ind.Sex □ Male (ad. Age: □ Juvenile (≈20 yrs) □ Young Adult (20-45 yrs) □ Mid. Adult (35-50 yrs) □ Old Adult (50-4 yrs) M Ind. Adult (35-50 yrs) □ Old Adult (35-50 yrs)	A - C - ADIUT	
Doserver Name: A.M] + J.1. B. Date: 3/19/14   SUMMARY DATA: Sex (non-metric):     Female   Mid.Sex   Male   Sex (osteometric):     Female   Mid.Sex   Male   Male   Sex (osteometric):     Female   Mid.Sex   Male   Male   Sex (osteometric):     Female   Mid.Sex   Male   Male   Male   Sex   Max   Femur Length:   NA   mm Max Tibia Length:   NA	Age, Sex, and Stature Recording Form - ADULT	Burial No
Diserver Name: A.M. J. + J.I. B.   Date: 3/9   14		
Sey (osteometric): □ Female M Probable Female □ Ind.Sex □ Probable Male □ Male Sex (osteometric): □ Female M Ind.Sex □ Male □ Male Sex (osteometric): □ Female M Ind.Sex □ Male □ Male □ Male □ M Ind.Sex □ Male □	•	
Sex (osteometric): □Female   Mind.Sex   Male Cat. Age: □Juvenile   <20 yrs)   Mind. Adult (20-35 yrs)   Mild. Adult (35-50 yrs)   Mild. (35-50 yrs)   Mi		
Cat. Age: C]uvenile (<20 yrs)   Young Adult (20-35 yrs)   Mid. Adult (35-50 yrs)   Old Adult (50+ yrs)   Mindeter. Adult Age Range: 24 - 82 years   Max Femur Length: NA   mm Max Tibia Length: NA   mm Max Length: NA	SUMMARY DATA: Sex (non-metric):  Female Probable Female	□ Ind.Sex □ Probable Male □ Male
Estimated Sex  Non-metric cranial and postcranial observations; Complete while following instructions listed in The Manual).  Pelvis	Sex (osteometric):	FO yes) Fold Adult (FO+ yes) Mindator Adult
Estimated Sex   Non-metric cranial and postcranial observations: Complete while following instructions listed in The Manual).   Pelvis	Age Range: 24 - 82 years Max Femur Length: NA mm Ma	x Tibia Length: NA mm
Non-metric cranial and postcranial observations:   Complete while following instructions listed in The Manual).   Pelvis		
Non-metric cranial and postcranial observations:   Complete while following instructions listed in The Manual).   Pelvis	Estimated Say	
Pelvis		llowing instructions listed in The Manual)
Ventral Arc (1-3 or -)		
Subpubic Concavity (1-3 or -)		
Greater Sciatic Notch (1-5 or -) Preauricular Sulcus (0-4 or -)  Estimated Sex, Pelvis (0-5):  See p.p. 23-24 for instructions on estimating sex of the pelvis.  See p.p. 23-24 for instructions to derive Estimated Sex, Combined score based on non-metric observations.  Estimated Sex, Combined score based on non-metric observations (0-5):  Estimated Sex, Combined score based on non-metric observations (0-5):  Estimated Sex, Combined score based on non-metric observations (0-5):  Indicate the estimated (non-metric) sex in the summary section on the top of this page. 0-Indeterminate  1-female  2-probably female  3-ambiguous  4-probable male  5-male  Osteometric data:  Maximum length of Talus:		
Preauricular Sulcus (0-4 or -)  Estimated Sex, Pelvis (0-5): 2  See p. 23-24 for instructions on estimating sex of the pelvis.  See p. 28 for instructions on estimating sex of Skull.  See p. 29 for instructions to derive Estimated Sex, Combined score based on non-metric observations.  Estimated Sex, Combined score based on non-metric observations (0-5): 2  Indicate the estimated (non-metric) sex in the summary section on the top of this page.  0-Indeterminate 1-female 2-probably female 3-ambiguous 4-probable male 5-male  Osteometric data:  Maximum length of Talus:mm (Accuracy 80 % following Gentry-Steele (1978))  Side measured:   Left ← Preferred standard   Right. unable to score left due to:   Labsence   fragmentation   pathology    Estimated Sex:   Female (Max length ≤ 51 mm)  Vertical diameter of the humeral head mm (Accuracy of 73 - 82% (Spradley & Jantz 2011:294))  Side measured:   Left ← Preferred standard   Right. unable to score left due to:   Labsence   fragmentation   pathology    Estimated Sex:   Female (<43 mm)   Indeterminate (44 - 46 mm)    Maximum diameter of the femoral head mm (Accuracy of 88% (Spradley & Jantz 2011:294))  Maximum diameter of the femoral head mm (Accuracy of 88% (Spradley & Jantz 2011:294))  Side measured:   Left ← Preferred standard   Right. unable to score left due to:   Labsence   Gragmentation   pathology    Maximum diameter of the femoral head mm (Accuracy of 88% (Spradley & Jantz 2011:294))  Maximum diameter of the femoral head mm (Accuracy of 88% (Spradley & Jantz 2011:294))		
Estimated Sex, Pelvis (0-5): 2	· · ·	
See p. 23-24 for instructions on estimating sex of the pelvis.  See p. 28 for instructions on estimating sex of Skull.  See p. 29 for instructions to derive Estimated Sex, Combined score based on non-metric observations.  Estimated Sex, Combined score based on non-metric observations (0-5):  Indicate the estimated (non-metric) sex in the summary section on the top of this page.  O-Indeterminate 1-female 2-probably female 3-ambiguous 4-probable male 5-male  Osteometric data:  Maximum length of Talus:  Maximum length of Indexernia (Accuracy of Skullina)  Maximum length of Talus:  Maximum length of Scales  Maximum length of Talus:  Maxi		
See p. 28 for instructions on estimating sex of Skull.		
See p. 29 for instructions to derive Estimated Sex, Combined score based on non-metric observations.  **Estimated Sex, Combined score based on non-metric observations [0-5]:		
Estimated Sex, Combined score based on non-metric observations (0-5):  Indicate the estimated (non-metric) sex in the summary section on the top of this page.  0-Indeterminate 1-female 2-probably female 3-ambiguous 4-probable male 5-male  Osteometric data:  Maximum length of Talus:mm		
Indicate the estimated (non-metric) sex in the summary section on the top of this page.  0-Indeterminate  1-female  2-probably female  3-ambiguous  4-probable male  5-male   Osteometric data:  Maximum length of Talus:		
Osteometric data:  Maximum length of Talus:mm		
Osteometric data: Maximum length of Talus:	· · · · · · · · · · · · · · · · · · ·	
Maximum length of Talus:mm (Accuracy 80 % following Gentry-Steele (1978))   Side measured:Right. unable to score left due to:absence fragmentation pathology	0-indeterminate 1-iemale 2-probably lemale 3-ann	biguous 4-probable male 5-male
Left ← Preferred standard   Right unable to score left due to: □absence □ fragmentation □ pathology   Unable to score left or right due to: _fragmentation □ pathology   Unable to score left or right due to: _fragmentation □ pathology   Unable to score left or right due to: _fragmentation □ pathology   Male (Max length ≥ 52 mm)		
Right. unable to score left due to:   absence   fragmentation   pathology   Unable to score left or right due to:   fragmentation   pathology   Unable to score left or right due to:   fragmentation   pathology   Estimated Sex:   Female (Max length ≥ 52 mm)      Wertical diameter of the humeral head   mm (Accuracy of 73 – 82% (Spradley & Jantz 2011:294))     Side measured:   Left   ← Preferred standard   pathology   Inable to score left due to:   fragmentation   pathology   Inable to score left or right due to:   fragmentation   pathology   Estimated Sex:   Female (<43 mm)   Indeterminate (44 – 46 mm)   Maximum diameter of the femoral head   mm (Accuracy of 88% (Spradley & Jantz 2011:294))     Side measured:   Left   ← Preferred standard   Right. unable to score left due to:   absence   fragmentation   pathology   pathology   Pathology   mm (Accuracy of 88% (Spradley & Jantz 2011:294))		Gentry-Steele (1978))
Sumable to score left or right due to:   Stragmen tation		
Estimated Sex: ☐ Female (Max length ≤ 51 mm)    Male (Max length ≥ 52 mm)    Vertical diameter of the humeral head mm		
Male (Max length ≥ 52 mm)    Vertical diameter of the humeral head mm	Fetimated Sev: Temple (May length < 51 mm)	griento tori
Vertical diameter of the humeral head		
Side measured: ☐ Left ← Preferred standard ☐ Right• unable to score left due to: ☐ absence ☐ fragmentation ☐ pathology ☐ Unable to score left or right due to:		2 (A
□ Right• unable to score left due to: □absence □ fragmentation □ pathology □ Unable to score left or right due to:fragmentation □ Estimated Sex: □ Female (<43 mm) □ Indeterminate (44 - 46 mm) □ Male (>47 mm)  Maximum diameter of the femoral head mm (Accuracy of 88% (Spradley & Jantz 2011:294))  Side measured: □ Left ← Preferred standard □ Right• unable to score left due to: □absence □ fragmentation □ pathology		(Accuracy of 73 – 82% (Spradley & Jantz 2011:294))
Unable to score left or right due to:	·	nce □ fragmentation □ nathology
Estimated Sex: □Female (<43 mm) □ Indeterminate (44 - 46 mm) □ Male (>47 mm)  Maximum diameter of the femoral head mm (Accuracy of 88% (Spradley & Jantz 2011:294))  Side measured: □ Left ← Preferred standard □ Right• unable to score left due to: □ absence □ fragmentation □ pathology		
☐ Male (>47 mm)  Maximum diameter of the femoral head mm (Accuracy of 88% (Spradley & Jantz 2011:294))  Side measured: ☐ Left ← Preferred standard ☐ Right• unable to score left due to: ☐ absence ☐ fragmentation ☐ pathology		
Maximum diameter of the femoral head mm (Accuracy of 88% (Spradley & Jantz 2011:294))  Side measured: □ Left ← Preferred standard □ Right• unable to score left due to: □ absence □ fragmentation □ pathology		
Side measured: □Left ← Preferred standard □ Right• unable to score left due to: □absence □fragmentation □ pathology	□Male (>47 mm)	
☐ Right• unable to score left due to: ☐absence ☐fragmentation ☐ pathology	Maximum diameter of the femoral head mn	n (Accuracy of 88% (Spradley & Jantz 2011:294))
	Side measured: □Left ← Preferred standard	
Munable to score left or right due to:oathology		
	₩Unable to score left or right due to:pat	hology
Estimated Sex: ☐ Female (<42.5 mm) ☐ Indeterminate (43.5 – 46.5 mm) ☐ Probable Male (46.5 – 47.5 mm)	Estimated Sex: $\square$ Female (<42.5 mm) $\square$ Indeterminate (43.5 – 46.	5 mm) □Probable Male (46.5 – 47.5 mm)
$\square$ Probable female (42.5 – 43.5 mm) $\square$ Male (>47.5 mm)		
<b>Estimated Sex, Combined Osteometric:</b> Combined estimated is sex is based on osteometric data recorded in		
dashed boxes above. Given incongruous results, consider the rank order of accuracy: 1) max diameter of femoral		
head, 2) Max length of talus, and 3) vertical diameter of humeral head. Indicate the estimated (metric) sex in the summary data area on the top of this page.		ad. mulcate the estimated (metric) sex in the
Estimated Sex:		nate $\square$ Male

Estimated Age <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR □Male]  L: R: Based on Stage table in, Average Age: Range: □Check box if casts used. □Unable to score due to pelvis of indeterminate sex □Unable to score due to:absen+
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:  ☑Unable to score due to: _absen ★
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc.)  Stage:
<u>Cranial Suture Closure (Use left side when possible**)</u> - = Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration For any region where <i>all</i> cranial sutures are unobservable, check the box next to region heading.
External Cranial Vault □ Unobservable  1. Midlambdoid 2. Lambda 3. Obelion 4. Anterior Sagittal 5. Bregma 6. Midcoronal 7. Pterion 8. Sphenofrontal 9. Inferior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 11. Incisive 11. Incisive 12. Anterior Median Palatine 12. Anterior Median Palatine 13. Posterior Median Palatine 14. Transverse Palatine 15. Sagittal 16. Left Lambdoid 17. Left Coronal
**Indicate sutures (by number) you scored on the right side when scoring left was not possible: <b>6,17</b> Indicate sutures (by number) you were unable to observe and why: <b>4,5,7,8,9,10</b> fragmentation
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form). Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate. Estimated Age:  ☐ Juvenile (<20 years) ☐ Young Adult (20-35 years) ☐ Middle Adult (35-50 years) ☐ Old Adult (50+ years) ☐ Indeterminate adult
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores. □ cranial suture and auricular surface scores due to missing pubic symphyses. □ only cranial suture scores due to missing pelvis.  ▼ other: only aricular surface has score.

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur	mm	
Side measured: □ Left	← Preferred standard	
		to: $\square$ absence $\square$ fragmentation $\square$ pathology
<b>⊠</b> Unable	to score left or right due	to: fragmentation
		<b>O</b>
Maximum length of the tibia	mm	
Side measured: □ Left	← Preferred standard	
☐ Right•	unable to score left due	to: $\square$ absence $\square$ fragmentation $\square$ pathology
🔀 Unable	e to score left or right due	to: <u>fragmentation</u>
•	•	<b>J.</b> .

# **Comments Section:**

Age, Sex, and Stature Recording Form - ADULT	Burial No. 8
Altenburg Lutheran Church Society Cemetery	
BOZ0009/CU584/Collection's Location: UWM -ARL&Curatorial Facility	
Observer Name: C.J. + A.M.J. Date: 5/1/14	
SUMMARY DATA: Sex (non-metric): ☐ Female ☒ Probable F emale ☐ Sex (osteometric): ☐ Female ☒ Ind.Sex ☐ Male Cat. Age: ☐ Juvenile (<20 yrs) ☐ Young Adult (20-35 yrs) ☐ Mid. Adult (35-Age Range: 20 - 15 years Max Femur Length: ► A mm Max	50 yrs) □0ld Adult (50+ yrs) <b>⊠</b> Indeter. Adult
Estimated Sex	
Non-metric cranial and postcranial observations: Complete while foll	owing instructions listed in The Manual).
Pelvis L R Skull	L M R
	st (1-5 or)
Subpubic Concavity (1-3 or -) Mastoid Pro	ocess (1-5 or -) <u>2</u> <u>3</u>
	al Margin (1-5 or -) <u>2</u> <u>2</u>
Greater Sciatic Notch (1-5 or -) 3 4 Glabella (1-	•
	nence (1-5 or -)
	mated Sex, Skull (0-5): <b>2</b>
See p.p. 23-24 for instructions on estimating sex of the pelvis	
See p. 28 for instructions on e	
See p. 29 for instructions to derive Estimated Sex, Combined score b	ased on non-metri <u>c observations</u> .
Estimated Sex, Combined score based on non-metric observations (0-5	5): 2
Indicate the estimated (non-metric) sex in the summary section on t	
	piguous 4-probable male 5-male
g	
Osteometric data:	
Maximum length of Talus:mm (Accuracy 80 % following 6	Gentry-Steele (1978))
Side measured: ☐ Left ← Preferred standard	as The amentation That halo are
☐ Right• unable to score left due to: ☐ absen	
	gmentation
$\square$ Male (Max length $\ge 51$ mm)	
Vertical diameter of the humeral head mm	(Accuracy of 73 – 82% (Spradley & Jantz 2011:294))
Side measured: $\Box$ Left $\leftarrow$ Preferred standard	
☐ Right• unable to score left due to: ☐absen	ice □ fragmentation □ pathology
▼ Unable to score left or right due to: <u>fra</u>	gmentation
Estimated Sex:     Female (<43 mm)	
☐ Indeterminate (44 – 46 mm)	
□Male (>47 mm)	
	(Accuracy of 88% (Spradley & Jantz 2011:294))
Side measured: ☐Left ← Preferred standard	
☐ Right. unable to score left due to: ☐absen	
Munable to score left or right due to: <u>fra</u>	gmentation
Estimated Sex: $\square$ Female (<42.5 mm) $\square$ Indeterminate (43.5 – 46.5	$5$ mm) $\square$ Probable Male (46.5 – 47.5 mm)
$\square$ Probable female (42.5 – 43.5 mm)	☐Male (>47.5 mm)
Estimated Sex, Combined Osteometric: Combined estimated is sex	
dashed boxes above. Given incongruous results, consider the rank o	
head, 2) Max length of talus, and 3) vertical diameter of humeral head	
summary data area on the top of this page.	,
Estimated Sex:	ate □ Male

Estimated Age <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR □Male]  L: R: Based on Stage table in, Average Age: Range:  □Check box if casts used. □Unable to score due to pelvis of indeterminate sex  Vunable to score due to: _absent
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:  Munable to score due to: _absen+
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc.)  Stage:
<u>Cranial Suture Closure (Use left side when possible**)</u> - = Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration For any region where <i>all</i> cranial sutures are unobservable, check the box next to region heading.
External Cranial Vault   Munobservable   Palate   Unobservable   1. Midlambdoid   11. Incisive   12. Anterior Median Palatine   3. Obelion   Stage: Avg:   13. Posterior Median Palatine   4. Anterior Sagittal   Vault Composite Score   14. Transverse Palatine   5. Bregma   Endocranial (Internal)   6. Midcoronal   Vault   Unobservable   7. Pterion   Stage: Avg:   15. Sagittal   8. Sphenofrontal   Stage: Avg:   16. Left Lambdoid   9. Inferior Sphenotemporal   17. Left Coronal   10. Superior Sphenotemporal   17. Left Coronal   11. Incisive   12. Anterior Median Palatine   12. Anterior Median Palatine   13. Posterior Median Palatine   14. Transverse Palatine   15. Sagittal   16. Left Lambdoid   16. Left Coronal   17. Left Coronal   18. Superior Sphenotemporal   17. Left Coronal   19. Inferior Sphenotemporal   17. Left Coronal   10. Superior Sphenotemporal   17. Left Coronal   11. Incisive   12. Anterior Median Palatine   12. Anterior Median Palatine   13. Posterior Median Palatine   14. Transverse Palatine   15. Sagittal   16. Left Lambdoid   17. Left Coronal   18. Superior Sphenotemporal   19. Anterior Median Palatine   19. Anterior M
**Indicate sutures (by number) you scored on the right side when scoring left was not possible: Indicate sutures (by number) you were unable to observe and why: all = pathology, biparictal thinning, depression
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form).  Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate.  Estimated Age:  Juvenile (<20 years)
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores. □ cranial suture and auricular surface scores due to missing pubic symphyses. □ only cranial suture scores due to missing pelvis.

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur	mm	
Side measured: 🗌 Left	← Preferred standard	
		to: $\square$ absence $\square$ fragmentation $\square$ pathology
ズUnabl€	e to score left or right du	e to: <u>fragmentation</u>
		J
Maximum length of the tibia	mm	
Side measured: 🗌 Left	← Preferred standard	
		to: $\square$ absence $\square$ fragmentation $\square$ pathology
<b>∡</b> Unabl	e to score left or right du	eto: fragmentation

# **Comments Section:**

Age, Sex, and Statur	e Recording Form - ADUL	T	Burial No. 9	100 EAST
Altenburg Lutheran Chur	ch Society Cemetery			
BOZ0009/CU584/Collect	ion's Location: UWM –ARL&Curat	orial Facility		
Observer Name: A.M.J	. + J. I. B. Date: 3/19/1	4-		
Sex ( Cat. Age: □Juvenile (<20	non-metric): □ Female <b>X</b> Pro osteometric): <b>X</b> Female □ Ind.So yrs) □Young Adult (20-35 yrs) <b>X</b> years <b>Max Femur Length:</b>	ex □Male <b>Ø</b> Mid. Adult (35-	50 yrs) □0ld Adult (50+	yrs) □Indeter. Adult
Pelvis Ventral Arc (1-3 or -) Subpubic Concavity (1 Ischiopubic Ramus Rid Greater Sciatic Notch ( Preauricular Sulcus (0 Estimated Sex, See p.p. 23-24 See p. 29 for instructio Estimated Sex, Combine	ge (1-3 or -)	Skull Nuchal Cre Mastoid Pr Supraorbit Glabella (1 Mental Em Est sex of the pelvi astructions on embined score to	st (1-5 or) ocess (1-5 or -) al Margin (1-5 or -) -5 or -) inence (1-5 or -) imated Sex, Skull (0-5): s. estimating sex of Skull. based on non-metric ob	M R 3 2 2 4 2 oservations.
Osteometric data: Maximum length of Tale Side measured:  Estimated Sex: 🏿 Fem	Annual Control of Conference and Con	acy 80 % following o d due to: □abser	Gentry-Steele (1978))	
Side measured: Estimated Sex: <b>⊠</b> Fema	e humeral head 40.5  X Left ← Preferred standar  Right. unable to score left or rightale (<43 mm) terminate (44 - 46 mm) (>47 mm)	due to: □abser		
Maximum diameter of Side measured:	the femoral head	d due to: □abser	_	
Estimated Sex, Combined as head, 2) Max length of summary data area on		.5 mm) stimated is sex sider the rank o of humeral he	is based on osteometr order of accuracy: 1) m ad. Indicate the estima	□Male (>47.5 mm) ric data recorded in ax diameter of femoral ted (metric) sex in the
Estimated Sex:	<b>⊠</b> Female	□Indetermin	ate $\square$ Ma	ale

Estimated Age <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR □Male]  L: R: Based on Stage table in, Average Age: Range:  □Check box if casts used. □Unable to score due to pelvis of indeterminate sex  ☑Unable to score due to: a bsen+
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:  ▼Unable to score due to: _absen+
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc.)  Stage: Mean Age: Range: Range:
<u>Cranial Suture Closure (Use left side when possible**)</u> - = Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration For any region where <i>all</i> cranial sutures are unobservable, check the box next to region heading.
External Cranial Vault Unobservable  1. Midlambdoid 2. Lambda 3. Obelion 4. Anterior Sagittal 5. Bregma 6. Midcoronal 7. Pterion 8. Sphenofrontal 9. Inferior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 11. Incisive 11. Incisive 12. Anterior Median Palatine 12. Anterior Median Palatine 13. Posterior Median Palatine 14. Transverse Palatine 14. Transverse Palatine 15. Sagittal 16. Left Lambdoid 17. Left Coronal 17. Left Coronal
**Indicate sutures (by number) you scored on the right side when scoring left was not possible: Indicate sutures (by number) you were unable to observe and why: IT cranium complete
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form). Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate. Estimated Age:  ☐ Juvenile (<20 years) ☐ Young Adult (20-35 years) ☐ Middle Adult (35-50 years) ☐ Indeterminate adult
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores. ▼ cranial suture and auricular surface scores due to missing pubic symphyses. □ only cranial suture scores due to missing pelvis. □ other:

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur	379 mm
Side measured: 🔀 Left	← Preferred standard
☐ Right•	unable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology
□Unable	to score left or right due to:
Maximum length of the tibia	
□ Right•	unable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology
□ Unable	e to score left or right due to:
Maximum length of the tibia Side measured: <b>⊠</b> Left □ Right•	mm ← Preferred standard unable to score left due to: □ absence □ fragmentation □ pathology

# **Comments Section:**

macroporosity on both aricular surfaces robust muscle attachment in retroaricular area on both.

Juvenile Age Assessment Part I – FUSION Prenatal to Childhood Altenburg Lutheran Church Society Cemetery BOZ0009/CU584/Collection's Location: UWM-ARL	Burial No. 10
Observer Name: A.M.J. + J.I.B. Date Started	: 10 12/14 Date Completed: 10 12/14
SUMMARY AGE Category:  Prenatal (Prenatal - 2.49 y) Early Childhood (2.5 - 5.9 y)  AGE RANGE: 2 fw / pn m/ pn y to 5 fw /  *'fw' fetal weeks; 'pn m' postnatal months; 'pn y' postnatal years.	ate Childhood (6-12.9 y)

# **FUSION OF OSSIFICATION CENTERS**

Use the Manual when completing this form. Record fusion data using the following codes: 0 = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when the feature is not observable.

Element	Primary Elements	Observation Code:	Fusion Complete
Sphenoid	Lesser Wings to Sphenoid Body	F	5 fm
-	Pre Sphenoid to Post Sphenoid Body	F	8 fm
	Greater Wings to Sphenoid Body	****	1 y
	Foramen Ovale (Greater Wing)	F	1 y
Temporal	Tympanic Ring to Temporal Squamous	400	35 fw
-	Petromastoid to Squamotympanic	F	1 y
Occipital	Supra-occipital to Interparietal Squama	F	5 fm
	Superior Median Fissure	F	1 y
	Sutura Mendosa	F	1 y
	Partes Laterales to Squama		1 <b>-</b> 3 y
	Hypoglossal Canal (Pars Laterales)	F	2 - 4 y
	Partes Laterales to Pars Basilaris	0	5 – 7 y
Mandible	Mandibular Symphysis	F	1 y
	Coronoid to main mass	-	By 8 f wks
Frontal	Fusion of L and R frontals	F	9 fm - 2 y
	Metopic Suture obliterated (generally)	и	2 – 4 y
Vertebrae	C1 – R & L Posterior arches (to one another)		4 – 5 y
	C1- Anterior arch to anterior bars	-	5 – 6 y
	C2- Intradental union (becomes Dens)		Full term
	C2- R & L Neural Arches (to one another)	-	3 – 4 y
	C2- Dens to Neural Arch		3 – 4 y
	C2- Centrum to Neural Arch	-	4 - 6 y
	C2- Ossiculum Terminale of dens	_	12 y
	C3-L5 Neural Arches (to one another)	F	1 – 2 y
	C3-L5 Neural Arches to Centra	_	2 – 5 y
Sacrum	Lateral Elements to Neural Arches → 'Wings'	-2-	2 – 5 y
(S1 and S2)	Wings to Centra		2 - 6 y
Os coxa	Ischiopubic ramus		5 <b>-</b> 11 y
Humerus	Greater and Lesser Tubercles to Head		2 – 6 y

<sup>\*&#</sup>x27;f m' indicates 'fetal month'; 'f wks' indicates 'fetal weeks'; 'm' indicates post natal months; and 'y' indicates postnatal years.

#### Estimated Age

Step 1) Age Range.

Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with 'O' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.

5-7

fetal weeks / postnatal months / postnatal years (circle unit)

to

2-4

fetal weeks / postnatal months / postnatal years (circle unit)

\*Remember to indicate the age range in the summary section on the top of page 1 of this form.

☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category. Procede to step 3.

Step 2) If you were able to provide an age range in step 1, skip this step and procede to step 3. If you selected 'indeterminate' in step 1 but your individual includes other evidence to allow you to assign the individual to an age category, indicate the information and the estimated age below. (e.g. petros portion compares favorably to individual 20 fetal weeks old). Then, use this information to select a categorical age in step 3.

Step 3) Age Category:

If you provided an age range in step 1, calculate the mean from of the ages and use the value to select an age category below.

Alternatively, if you arrived at step 3 following the directions in step 2, to proceed to assign your individual to an age category below based on the data you provided in step 2.

- Prenatal 2.5 years (Prenatal 2.49 years)
- Early Childhood (2.5 5 years)
- Late Childhood (6 12 years)
- Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

#### **Comments:**

52-5 Y

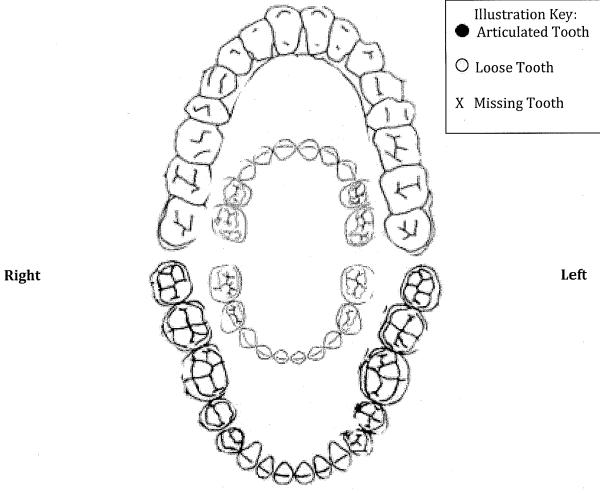
#### **JUVENILE AGE ASSESSMENT PART II form:**

Early Childhood (2.5 – 5 years)

☐ Late Childhood (6 - 12 years)

☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

Juvenile Age Recording Form Part II Early Childhood - Adolescence Altenburg Lutheran Church Society Cemetery BOZ0009/CU584/Collection's Location: UWM-ARL	Burial No. 10
Observer Name: A. M.J J. I. B. Date Started: 10/12/14 Date Completed: ""	
SUMMARY DATA:  Dental Age Range: 4 - 10.9 years Category: □  □ Late Childhood (6 - 12.9 y) □ Adolescent (13 - 19.9 y) □ Inde  Osteometric Age Range: years Category: □  □ Late Childhood (6 - 12.9 y) □ Adolescent (13 - 19.9 y) □ Inde	eterminate Juvenile Early Childhood (2.5 – 5.9 y)
<b>NON-METRIC DENTAL AGE ASSES</b> Permanent teeth encircle line drawings of the deciduous denti $Dentition \square$ No Dentition	
Maxilla (Labial)	
	Illustration Key:



Mandible (Labial)

# <u>Moorres Tooth Formation and Resorption Assessments (1963a,b)</u> <u>Deciduous tooth formation stages (Moorrees et al. 1963a)</u>

Deciduous mandibular tooth	Formation Stage Code (Use Table in Manual)		Not Scored*	Estimat (Use tables	Not Scored*	
	Left	Right		Left	Right	
Canine						
1 <sup>st</sup> Molar	Ac	Ac		1.83		
2 <sup>nd</sup> Molar	Ac	Ac		2.93		

	Left	Right		Left	Right	
Canine						
1 <sup>st</sup> Molar	Ac	Ac		1.83		
2 <sup>nd</sup> Molar	Ac	Ac		2.93		
Indicate reason tooth no Inable to make assessme						l
□ Tooth/Teeth articulate Comments:						
<u>Deciduous tooth resorptic</u>	on stages, if a	pplicable (Mod	orrees et al. 1	<u>963a)</u>		
Deciduous	Format	ion Stage Cod	e Not	Esti	mated Age	Not
mandibular tooth	(Use Ta	ible in Manua	l) scored*	(Use tab	le in Manual)	scored*
	Left	Right		Left	Right	
Canine						
1st Molar - mesial root						
1st Molar – distal root						
2 <sup>nd</sup> Molar – mesial root	t					
2 <sup>nd</sup> Molar – distal root						
*Indicate reason tooth no						
Unable to make assessm	ents due to: 🛭	∃Missing Toot	:h/Teeth □F	Fragmente	d Tooth/Teeth	l .
			•	O	,	~
			•	O		
Comments:	d with alveol	ar bone.				
Comments:	d with alveol	ar bone. oorrees et al. :	1963b)			
Comments: <u>Permanent Tooth format</u>	d with alveol	ar bone. oorrees et al. Formation	(963b) Stage Code		Mean Aş	ge
Comments:	d with alveol	ar bone.  oorrees et al.  Formation (Use Table	1963b)			ge Manual)
Comments: Permanent Tooth format	d with alveol	ar bone. oorrees et al. Formation	(963b) Stage Code		Mean Aş	ge
Comments: Permanent Tooth format	d with alveol	ar bone.  oorrees et al.  Formation (Use Table	(963b) Stage Code in Manual)		Mean Aş (Use tables in N	ge Manual)
Comments:Permanent Tooth formation  Permanent Tooth	d with alveol	ar bone.  oorrees et al.  Formation (Use Table	(963b) Stage Code in Manual)		Mean Aş (Use tables in N	ge Manual)
Comments:  Permanent Tooth formati  Permanent Tooth  1st Incisor (Maxilla)	d with alveol	ar bone.  oorrees et al.  Formation (Use Table	(963b) Stage Code in Manual)		Mean Aş (Use tables in N	ge Manual)
Permanent Tooth formation  Permanent Tooth  Permanent Tooth  1st Incisor (Maxilla)  2nd Incisor (Maxilla)	d with alveol	ar bone.  oorrees et al.  Formation (Use Table	(963b) Stage Code in Manual)		Mean Aş (Use tables in N	ge Manual)
1st Incisor (Maxilla) 2nd Incisor (Maxilla) 1st Incisor (Mandible)	d with alveol	ar bone.  oorrees et al.  Formation (Use Table	(963b) Stage Code in Manual)		Mean Aş (Use tables in N	ge Manual)
Permanent Tooth formation  Permanent Tooth  1st Incisor (Maxilla)  2nd Incisor (Maxilla)  1st Incisor (Mandible)  2nd Incisor (Mandible)	ion stages (M	ar bone.  oorrees et al.  Formation (Use Table	(963b) Stage Code in Manual)		Mean Aş (Use tables in N	ge Manual)
Permanent Tooth formate  Permanent Tooth  1st Incisor (Maxilla) 2nd Incisor (Maxilla) 1st Incisor (Mandible) 2nd Incisor (Mandible) Canine (Mandible)	ion stages (M	ar bone.  oorrees et al.  Formation (Use Table	(963b) Stage Code in Manual)		Mean Aş (Use tables in N	ge Manual)
Permanent Tooth formation  Permanent Tooth  1st Incisor (Maxilla) 2nd Incisor (Maxilla) 1st Incisor (Mandible) 2nd Incisor (Mandible) Canine (Mandible) 1st Premolar (Mandible) 2nd Premolar (Mandible)	e)	ar bone.  oorrees et al.  Formation (Use Table  Left	(963b) Stage Code in Manual) Right		Mean Aş (Use tables in I eft	ge Manual) Right
Permanent Tooth formats  Permanent Tooth formats  1st Incisor (Maxilla)  2nd Incisor (Maxilla)  1st Incisor (Mandible)  2nd Incisor (Mandible)  Canine (Mandible)  1st Premolar (Mandible)  2nd Premolar (Mandible)  1st Molar (Mandible)	e)	ar bone.  oorrees et al.  Formation (Use Table	(963b) Stage Code in Manual)		Mean Aş (Use tables in N	ge Manual)
Permanent Tooth formation  Permanent Tooth  1st Incisor (Maxilla) 2nd Incisor (Maxilla) 1st Incisor (Mandible) 2nd Incisor (Mandible) Canine (Mandible) 1st Premolar (Mandible) 2nd Premolar (Mandible) 2nd Molar (Mandible) 2nd Molar (Mandible)	e)	ar bone.  oorrees et al.  Formation (Use Table  Left	(963b) Stage Code in Manual) Right		Mean Aş (Use tables in I eft	ge Manual) Right
Permanent Tooth formats  Permanent Tooth  1st Incisor (Maxilla) 2nd Incisor (Maxilla) 1st Incisor (Mandible) 2nd Incisor (Mandible) 2nd Incisor (Mandible) Canine (Mandible) 1st Premolar (Mandible) 2nd Premolar (Mandible) 2nd Molar (Mandible) 3rd Molar (Mandible) 3rd Molar (Mandible)	e)	ar bone.  oorrees et al.  Formation (Use Table Left  2. 1/2	(963b) Stage Code in Manual) Right	L	Mean Ag (Use tables in Neft	ge Manual) Right
Permanent Tooth formats  Permanent Tooth  1st Incisor (Maxilla) 2nd Incisor (Maxilla) 1st Incisor (Mandible) 2nd Incisor (Mandible) Canine (Mandible) 1st Premolar (Mandible) 2nd Premolar (Mandible) 2nd Molar (Mandible) 3rd Molar (Mandible) 3rd Molar (Mandible) *Indicate reason tooth no	e) le) ot assessed by	ar bone.  oorrees et al.  Formation (Use Table Left  Left  2 1/2	(963b) Stage Code in Manual) Right  R. 1/2	L L	Mean Aş (Use tables in I eft	ge Manual) Right
Permanent Tooth formats  Permanent Tooth  1st Incisor (Maxilla) 2nd Incisor (Maxilla) 1st Incisor (Mandible) 2nd Incisor (Mandible) 2nd Incisor (Mandible) Canine (Mandible) 1st Premolar (Mandible) 2nd Premolar (Mandible) 2nd Molar (Mandible) 3rd Molar (Mandible) 3rd Molar (Mandible)	e) le) ot assessed by ents due to:	ar bone.  oorrees et al.  Formation (Use Table Left  Left   Left  y checking the	(963b) Stage Code in Manual) Right  R. 1/2	L L	Mean Aş (Use tables in I eft	ge Manual) Right

Formation and eruption sequence following Ubelaker (1989) Instructions: Estimate the age of your subject lot by finding the image within the MANUAL that best
matches your individual's dentition. Indicate the age estimation in the fields below:
Estimated Age:
Non-metric Dental Age Assessment, Combined Results  1) Age Range:  The final estimated age range is the youngest mean age or the youngest age of a given range and the oldest mean age or the oldest age of a given age range derived from any of the non-metric dental age assessment methods above. Indicate this data in the fields below and in the summary section on page one of your form.
Age range: 4 - 10.9 years.  2) Mean Age. Calculate the average of the oldest and youngest mean age scores or provide a single mean score from above when only one exists.  Mean Age: 7.45 years
3) Age Category. Select the age category (below) into which the value you generate following step 2) fits. Select the same category in the summary section on page one of your form.    Early Childhood (2.5 – 5.9 years)   Late Childhood (6 – 12.9 years)   Adolescent (13 – 19.9 years)   Indeterminate   Lot: Date:
w/o morress et. al. 1963 mean would be 6 late childhood

# **OSTEOMETRIC AGE ASSESSMENT**

Measure the maximum length of complete limbbones following Maersh (1970)

Element	Left (mm)	Epiphysis included?	NM*	Right (mm)	Epiphysis included?	Age;	NM*
Humerus							
Radius							
Ulna							
Femur							
Tibia							
Fibula							

<sup>\*</sup>NM indicates Not measured. Place a '\sqrt{'} in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

<u>Estimatea</u>	<u>l Age,</u>	<b>Combined</b>	osteometric

1)	The final estimated age range is the youngest mean age or the youngest age of a given range and the oldest mean age or the oldest age of a given age range derived from the osteometric assessments above. Indicate this data in the fields below and in the summary section on page one of your form.
	Age range: Unit: fetal weeks/postnatal months/postnatal year (circle).
2)	Calculate the mean of the ages you provided in the age range (above) or provide a single mean age when only one exists.  Mean Age:Unit: fetal weeks/postnatal months/postnatal year (circle one).
3)	Age Category. Select the age category (below) into which the value you generate following step 2) fits. Select the same category in the summary section on page one of your form.
	<ul> <li>□ Early Childhood (2.5 – 5.9 years)</li> <li>□ Late Childhood (6 – 12.9 years)</li> <li>□ Adolescent (13 – 19.9 years)</li> <li>□ Indeterminate Juvenile</li> </ul>

Juvenile Age Assessment Part I – FUSION Prenatal to Childhood Altenburg Lutheran Church Society Cemetery BOZ0009/CU584/Collection's Location: UWM-ARL	Burial No. 11
Observer Name: A.M.J. + J. I.B. Date Starter	d: 10 12 14 Date Completed: 10 12 14
SUMMARY AGE Category:  Prenatal (Prenatal – 2.49 y)   Early Childhood (2.5 – 5.9 y)   AGE RANGE:   fw/ pn m/ pn y to   fw' fetal weeks; 'pn m' postnatal months; 'pn y' postnatal years.	Late Childhood (6-12.9 y) lndeterminate //pnm/pny lndeterminate

# **FUSION OF OSSIFICATION CENTERS**

Use the Manual when completing this form. Record fusion data using the following codes: O = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when the feature is not observable.

Element	Primary Elements	Observation Code:	Fusion Complete
Sphenoid	Lesser Wings to Sphenoid Body	F	5 fm
	Pre Sphenoid to Post Sphenoid Body	F	8 fm
	Greater Wings to Sphenoid Body	-	1 y
	Foramen Ovale (Greater Wing)		1 y
Temporal	Tympanic Ring to Temporal Squamous	- '	35 fw
	Petromastoid to Squamotympanic	-	1 y
Occipital	Supra-occipital to Interparietal Squama	-	5 fm
	Superior Median Fissure	_	1 y
	Sutura Mendosa	-	1 y
	Partes Laterales to Squama		1 - 3 y
	Hypoglossal Canal (Pars Laterales)	0	2 – 4 y
	Partes Laterales to Pars Basilaris	D	5 – 7 y
Mandible	Mandibular Symphysis	-	1 y
	Coronoid to main mass		By 8 f wks
Frontal	Fusion of L and R frontals	_	9 fm - 2 y
	Metopic Suture obliterated (generally)	-	2 – 4 y
Vertebrae	C1 - R & L Posterior arches (to one another)	_	4 – 5 y
	C1- Anterior arch to anterior bars	_	5 – 6 y
	C2- Intradental union (becomes Dens)	-	Full term
	C2- R & L Neural Arches (to one another)	0	3 – 4 y
	C2- Dens to Neural Arch	0	3 – 4 y
	C2- Centrum to Neural Arch	0	4 - 6 y
	C2- Ossiculum Terminale of dens	-	12 y
	C3-L5 Neural Arches (to one another)	0	1 – 2 y
	C3-L5 Neural Arches to Centra	Ò	2 – 5 y
Sacrum	Lateral Elements to Neural Arches → 'Wings'		2 – 5 y
(S1 and S2)	Wings to Centra	-	2 - 6 y
Os coxa	Ischiopubic ramus	-	5 – 11 y
Humerus	Greater and Lesser Tubercles to Head	0	2 - 6 y

<sup>\*&#</sup>x27;f m' indicates 'fetal month'; 'f wks' indicates 'fetal weeks'; 'm' indicates post natal months; and 'y' indicates postnatal years.

#### Estimated Age

Step 1) Age Range.

Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with 'O' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.

2-4

fetal weeks / postnatal months / postnatal years (circle unit)

to

8 fm

fetal weeks / postnatal months / postnatal years (circle unit)

☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category. Procede to step 3.

Step 2) If you were able to provide an age range in step 1, skip this step and procede to step 3. If you selected 'indeterminate' in step 1 but your individual includes other evidence to allow you to assign the individual to an age category, indicate the information and the estimated age below. (e.g. petros portion compares favorably to individual 20 fetal weeks old). Then, use this information to select a categorical age in step 3.

Step 3) Age Category:

If you provided an age range in step 1, calculate the mean from of the ages and use the value to select an age category below.

Alternatively, if you arrived at step 3 following the directions in step 2, to proceed to assign your individual to an age category below based on the data you provided in step 2.

- Prenatal 2.5 years (Prenatal 2.49 years)
- Early Childhood (2.5 5 years)
- Late Childhood (6 12 years)
- Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

#### **Comments:**

8 fm - 24

# **JUVENILE AGE ASSESSMENT PART II form:**

Prenatal – 2.5 years (LMP – 2.5 years)

☐ Early Childhood (2.5 – 5 years)

☐ Late Childhood (6 – 12 years)

☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

<sup>\*</sup>Remember to indicate the age range in the summary section on the top of page 1 of this form.

Juvenile Age Assessment Part II- Prena Altenburg Lutheran Church Society Ceme BOZ0009/CU584/Collection's Location: U	tery	Burial No	
Observer Name: A.M.J. + J. I. B.	Date Started: 10/12/14 Date Completed: **		
Osteometric Age: Age range: 28 - 34	Fetus 🗌 Neonate 🔲 Infant 📗	Toddler Indeter Indeter	rminate rminate rminate rminate
Use and attach a Juvenile mixed dentition of $\mathbb{R}^2$ Mandible not present. $\mathbb{R}^2$ $\mathbb{R}^2$		ropriate for your subje nd Maxilla not prese c 1m	
$M^1$		1 <b>M</b>	Illustration Key: Articulated Tooth
Right	Maxilla, occlusal vi	ew Left	O Loose Tooth
		18 P	X Missing Tooth
$M_1$ $m_2$ $m_1$	c i 2 2i 11 1i	1M 2m 1m	
Right	Mandibular, occlusal v	iew Left	

#### **Formation and Eruption Assessments**

Complete all assessments unless you are absolutely certain that your individual presents demonstrative evidence of prenatal or postnatal age. If you have *any uncertainty* about the individual's age, complete all assessments. Refer to the manual as you complete this form.

Mineralization Stages (Sunderland et al. 1987) Applied to prenatal individuals only.

Use the table below to assign a fetal age to the individual based on the oldest age in weeks post fertilization (wpf) for mineralized teeth that are recorded as "Present." Indicate your answers in the fields below.

	Presence/Absence		Tooth	15 <sup>th</sup> %	Range
	LEFT	RIGHT	100111	(wpf):	(wpf):
Maxilla			di1	15	13 - 17
			di2	17	14 - 19
			dc	19	17 - 20
			dm1	16	14 - 17
			dm2	19	18 - 20
Mandible			di1	15	13 - 17
			di2	17	14 - 19
			dc	19	17 – 20
			dm1	16	14 - 17
			dm2	19	18 - 20

1 0		t lertilization. Age Kan	· —— ——	*	
		: 🗌 Lack of evidence (			
Age is likely po	stnatal; evidence	2:			
Other:					
Tooth formation	stages (Moorred	e <mark>s et al. 1963)</mark> Applies	to postnatal individu	als.	
		opment status of the n			nd
		Indicate the appropria			
appropriate fields			•		
Mandibular	Format	ion Stage Code	Estimate	d Age (years)	
Tooth	Left	Right	Left	Right	
С					٦
1m					┨
2m					╗
x 1:		7.7			
		you were able to score:			
		e: Missing Tragm			
	Age likely letal;	evidence:			
Other:					
Formation and e	runtion seauenc	e following Ubelaker	(1989)		
		our subject lot by findi		the MANUAL that be	est
		e the age estimation in	0		,,,,
•		<u> </u>		.1	
		hs Estimated Age Rai	nge:	mths	
Unable to make a		o: ther:			
	gmentation [ ] O	uici			

Eruption times (After Lysell et al. 1962, as presented in Scheuer & Black 2000:153)
Instructions: In the fields below, indicate whether a deciduous tooth is present or absent. Beneath the table, indicate the oldest mean age and age range given the teeth present.

	Tooth	Emerged past alveolar crest? (yes/no)	Mean (months)	Age Range +/- 1 SD (months)
	Central Incisor		10	8-12
	Lateral Incisor		11	9-13
Maxilla	Canine		19	16-22
	First Molar		16	13-19*
	Second Molar		29	25-33
	Central incisor		8	6-10
	Lateral incisor		13	10-16
Mandible	Canine		20	17-23
	First molar		16	14-18
	Second molar		27	23-31*

an Age:	mths	Age range:	-	+/- :	1 SD
		ble to observe too	th above alve	olar crest. 🗌	Other:
imated Age. Con	obined Nonmet	ric Dental Assess	ment		
Age Range: The digiven range and the non-metric dia. Do results frosteological	final estimated ag the oldest mean lental age assessi om one assessme evidence? If so, ii	ge range is the you age or the oldest a ment methods abo ent disagree mark ndicate the age ra	ingest mean a age of a given ove. edly from oth nge, the asses	age range den ers and other sment, and co	rived from any of extant ontrary evidence
you provided *Don't use dat	d information in a ta besides that coll	a. (immediately al ected within the no Unit: fetal week:	pove), do not t n-metric denta s/postnatal m	use it for the a l assessment fo nonths/postna	ge range (below). or the age range. atal year (circle).
mean score from	above when onl	of the oldest and y y one exists.	roungest mear	n age scores c	or provide a single
Fe   N   In   Te	etus (9 – 40 week eonate (Birth – 2 Ifant (Birth – 11.9 oddler (1 – 2.49 y	ss) 8 days) 9 months) years)	· .	Date:	
	imated Age, Com Age Range: The figiven range and the non-metric dia. Do results fro osteological with your su i. Agii. Com b. Indicate age you provided *Don't use dat Age range  Mean Age. Calcul mean score from Mean Age:  Age Category. See 2) fits. Select the	Age Range: The final estimated aggiven range and the oldest mean the non-metric dental age assessment osteological evidence? If so, is with your supervisor (e.g., 18 i. Age range:  ii. Contradictory oster ii. Contradictory oster ii. Contradictory oster ii. Contradictory oster ii. Age range in fields be you provided information in *Don't use data besides that coll Age range  to  Mean Age. Calculate the average of mean score from above when only Mean Age:  Unit: fetal we age Category. Select the age category if Embryo (0-8 weeks Fetus (9 - 40 weeks Infant (Birth - 11.9).	Age range derive ii. Contradictory osteological evidence:  b. Indicate age range in fields below and in the su you provided information in a. (immediately ale *Don't use data besides that collected within the nor. Age range Unit: fetal weeks Unit: Select the same category in the summary see Embryo (0-8 weeks or two lunar more Fetus (9 - 40 weeks) Neonate (Birth - 28 days) Infant (Birth - 11.9 months) Toddler (1 - 2.49 years)	Age range: derived from the ii. Contradictory osteological evidence: derived from the iii. Contradictory osteological evidence: iii. Contradictory osteolo	able to make assessment due to:  Missing  Fragmentation  Unable to observe tooth above alveolar crest.   imated Age. Combined Nonmetric Dental Assessment  Age Range: The final estimated age range is the youngest mean age or the you given range and the oldest mean age or the oldest age of a given age range det the non-metric dental age assessment methods above.  a. Do results from one assessment disagree markedly from others and other osteological evidence? If so, indicate the age range, the assessment, and co with your supervisor (e.g., 18 – 20 week mineralization age range, but need i. Age range: derived from the

# **OSTEOMETRIC AGE ASSESSMENT - FETAL**

**Note:** The following osteometric assessments are applicable only to individuals determined to be prenatal based on forgoing fusion and dental assessments. See MANUAL for instructions on collecting measurements as well as deriving age estimations.

Occipital: Pars late	<u>ents</u> ralis and Par	rc hacilar	ie (Frazokae e	ınd	Voca 107	e)			
CANTAN AND A CONTRACTOR CONTRACTOR AND	Measurement		Left (mm)	14	nm)		tht (mm)	Ag	e:
	Maximum len		_		/A		8.18		2 fw
Pars Basilaris	Maximum Wi		N/A		1.94	N/			.8 fw
	Sagittal Lengt	h (SL)	N/A	1	1.43	N/	A	3	34 fw
*If you were unable			ments, indicat	e th	e reason b	elov	<i>7</i> :	***	
Age estimation from The Pars Basilaris M Larger than the S Smaller than the Not applicable; u	MW measuren SL measurem SL measuren	nent value ent value nent value	(above) is $\rightarrow$ the $\rightarrow$ the	n≥	i <b>ghlin-Blac</b> 30 fetal w 28 fetal w	eeks			
Sphenoid (Fazekas	& Kosa 1978	3)							
Measurement nai	me	<i>Left</i> (mm	tracer to the state of the second and the second an	e	Right (mi	n)	Fetal Age		*Not
-			(mm)						measured?
Body -Length (BI		N/A			N/A				
Body - Width (BV		N/A	37./4		N/A		······		
Lesser Wing- Len			N/A						
Lesser Wing- Wid			N/A				***************************************		
Greater Wing -Le			N/A						
Greater Wing – W (GWW)	/1atn 		N/A						
Temporal (Fazeka:	s & Kosa 197	8)							
	L	eft (mm)	Right (mm)	F	etal Age		diam'r		*Not measured?
Petrous - Length									
Petrous - Width			-						
Mandible, Maxilla,	and Zygoma	(Fazekas	& Kosa 1978	)					
		,	Left (mm)	NUMBER OF STREET	Right (mm	)	Fetal Age		*Not
									measured?
Mandible -Lengtl									**
Mandible - Width									
Mandible - Obliq	ue length								
Maxilla -Length				•					
Maxilla – Height									
Maxilla – Width	-L							+	
Zygomatic - Oblid				-				+	
*Place a '√' in the fo		ns of table	us to indicate a		naggurama	nto:	lon mara :::	ah!	a to
collect. If you need n	nore writina c	nace nlea	se use the com	mer	neusurenne nts section i	<u>1116)</u> an n	<u>5 vou were ur</u> 5	<u>iuDli</u>	<u>5 LU</u>

Lot:\_\_\_\_\_

Date: \_\_\_\_\_

# <u>Postcranial Measurements</u>

Shoulder elements and upper limbs (Fazekas & Kosa 1978)

M	L	T	п. 7.4	487
Measurement name	Left	Right	Fetal Age	*Not
	(mm)	(mm)		measured?
Clavicle- Length				
Scapula -Length (height)				
Scapula – Width				
Scapula – Length of the Spine				
Humerus - Length (height)				
Humerus – Distal Width				
Radius – Length				
Ulna – Length				

Pelvic elements and lower limbs (Fazekas & Kosa 1978)

Measurement name	Left (mm)	Right (mm)	Fetal Age	*Not measured?
Maximum iliac length				
Maximum iliac width				
Maximum ischium length				
Maximum ischium width				
Maximum length of pubis		***************************************		
Femur maximum length	57.44		32 fw	
Femur distal width				
Tibia maximum length				
Fibula maximum length				

<sup>\*</sup>Place a '\sqrt' in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

# **COMMENTS:**

# OSTEOMETRIC AGE ASSESSMENT - POSTNATAL through 2.49 years

<u>Note:</u> The following osteometric assessments are applicable only to individuals with ages determined via fusion and dental assessments to be postnatal through 2.49 years of age. Methods follow Maresh (1970).

Element	Left (mm)	Epiphysis included?		NM*	Right (mm)	Epiphysis included?	Age:	NM*
Humerus								
Radius			····					
Ulna								
Femur								
Tibia								
Fibula								

<sup>\*</sup>NM indicates Not measured. Place a '\sqrt{in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

Es	timated Age, Combined osteomet	ric
	Age Range:	<u></u>
	and the oldest mean age or the o	the youngest mean age or the youngest age of a given range dest age of a given age range derived from the osteometric data in the fields below and in the summary section on page
	to	Unit: fetal weeks/postnatal months/postnatal year (circle).
	34	Unit: fetal weeks/postnatal months/postnatal year (circle).
2)	Mean Age:	
	Calculate the mean of the ages you age when only one exists.	u provided in the age range (above) or provide a single mean
	31	Unit: fetal weeks/postnatal months/postnatal year (circle).
3)	Select the age category (below) in the same category in the summar	to which the value you generated following step 2) fits. Select y section on page one of your form.
	☐ Embryo (0-8 weeks	3 days) ar)

Age, Sex, and Statur	e Recording Form – AD	ULT	Burial No. <u>12</u>	
Altenburg Lutheran Chur	ch Society Cemetery			
BOZ0009/CU584/Collection's Location: UWM -ARL&Curatorial Facility				
Observer Name: Amj.	+ J.I.B. Date: 3 27	/14		
SUMMARY DATA: Sex (	non-metric): 🕱 Female 🗆 1		☐ Ind.Sex ☐ Probable Male ☐ M	lale
Cat. Age: □Juvenile (<20	osteometric): □Female XIn yrs) □Young Adult (20-35 yrs years Max Femur Length:_	s) 🗆 Mid. Adult (35-	-50 yrs) □Old Adult (50+ yrs) <b>⊠</b> Indo x <b>Tibia Length: <u>321</u> m</b>	eter. Adult
Pelvis Ventral Arc (1-3 or -) Subpubic Concavity (1 Ischiopubic Ramus Ric Greater Sciatic Notch ( Preauricular Sulcus (0 Estimated Sex, See p.p. 23-24	L R -3 or -) -3 or -) -4 or -) -4 or -) -4 or -) -4 or instructions on estimating See p. 28 fo	Skull Nuchal Cre Mastoid Pr Supraorbit Glabella (1 Mental Em Est ng sex of the pelvi r instructions on e	inence (1-5 or -)	R
Indicate the estimated 0-Indeterminate  Osteometric data:  Maximum length of Ta  Side measured:  Estimated Sex: □ Fem	☐ Left ← Preferred stand ☐ Right• unable to score le	nmary section on female 3-amb ccuracy 80 % following of dard eft due to: □abser	the top of this page. Diguous 4-probable male	
	☐ Left ← Preferred stand ☐ Right• unable to score left or right	eft due to: □abser	nce $\square$ fragmentation $\square$ patholog	
Maximum diameter of Side measured:	□Left ← Preferred stand	lard eft due to: □abser	n (Accuracy of 88% (Spradley & Jantz 2011 nce □fragmentation □ pathology	
Estimated Sex, Combined ashed boxes above. Combined as a short of the combi	☐ Probable female (42.5 – fined Osteometric: Combine Given incongruous results, co ftalus, and 3) vertical diame	43.5 mm) d estimated is sex onsider the rank o	is based on osteometric data recorder of accuracy: 1) max diameterad. Indicate the estimated (metri	(>47.5 mm) corded in er of femoral

<b>Estimated Age</b> <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)	
Suchey-Brooks (0-6) [Scores for □Female OR □Male]  L: R: Based on Stage table in, Average Age: Range:  □Check box if casts used. □Unable to score due to pelvis of indeterminate sex  □Unable to score due to: _absent	
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:  XUnable to score due to: _abscnt	
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc Stage: Mean Age: Range: ≠ 4∪ *Scored Right side because left is: □ absent □ fragmented □ pathological □ other: □ Unable to score left or right because both are □ absent □ fragmented □ pathological □ other:	:.)
<u>Cranial Suture Closure (Use left side when possible**)</u> - = Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration For any region where <i>all</i> cranial sutures are unobservable, check the box next to region heading.	
External Cranial Vault ☐ Unobservable  1. Midlambdoid  2. Lambda 3. Obelion 4. Anterior Sagittal 5. Bregma 6. Midcoronal  Palate ☑ Unobservable  11. Incisive 12. Anterior Median Palatine 13. Posterior Median Palatine 14. Transverse Palatine Endocranial (Internal)  Vault ☐ Unobservable	5_
**Indicate sutures (by number) you scored on the right side when scoring left was not possible: 17 Indicate sutures (by number) you were unable to observe and why: 1-2,7-10, 11-14 fragmentation	<u>_</u>
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate.  Estimated Age:  ☐ Juvenile (<20 years)  ☐ Young Adult (20-35 years)  ☐ Middle Adult (35-50 years)  ☐ Indeterminate adult	<u>1).</u>
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores.  ズ cranial suture and auricular surface scores due to missing pubic symphyses. □ only cranial suture scores due to missing pelvis. □ other:	

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur	mm
Side measured: 🗆 Left	← Preferred standard
□ Right•	unable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology
<b>⊠</b> Unable	to score left or right due to: <b>fragmentation</b>
	<b>J </b>
Maximum length of the tibia 32	
Side measured: 🕱 Left	← Preferred standard
☐ Right•	unable to score left due to: □ absence □ fragmentation □pathology
9	to score left or right due to:

# **Comments Section:**

Age, Sex, and Stature Rec	ording Form - ADU	LT	Burial No. <u>1</u>	
German Evangelical Lutheran Ce	metery (Stolz Site)			
BOZ0048/CU583/Collection's Lo	ocation: UWM -ARL&Cur	atorial Facility		
Observer Name: A.M.J. + J	.1. B. Date: 3 27	14		
SUMMARY DATA: Sex (non-me	e <b>tric):</b> 🗆 Female 🗀 Pr	obable F emale	🗆 Ind.Sex 🗶 Pro	bable Male 🗆 Male
Sex (osteon Cat. Age: Ujuvenile (<20 yrs)  Age Range: years	netric): <b>⊠</b> Female □ Ind.  Young Adult (20-35 yrs)   <b>Max Femur Length</b> :	☐Mid. Adult (35	-50 yrs) □Old Adu x Tibia Length:_2	lt (50+ yrs) <b>M</b> indeter. Adult <b>517</b> m <b>m</b>
Estimated Sex				
Non-metric cranial and postci		_	lowing instruction	
Pelvis	L R	Skull	-t (1 F )	L M R
Ventral Arc (1-3 or -)			st (1-5 or)	2 -
Subpubic Concavity (1-3 or -)			ocess (1-5 or -)	
Ischiopubic Ramus Ridge (1-	,	-	al Margin (1-5 or	<u> </u>
Greater Sciatic Notch (1-5 or Preauricular Sulcus (0-4 or -)	,		inence (1-5 or -)	
Estimated Sex, Pelvis			imated Sex, Skull	(0-5): 2
	tructions on estimating	_		(0 5). <u>—</u>
3cc p.p. 23-24 for ms			estimating sex of	Skull.
See p. 29 for instructions to d				
•				
Estimated Sex, Combined scor	e based on non-metric	observations (0-	5): 4	
Indicate the estimated (non-				
0-Indeterminate 1-fem	ale 2-probably fo	emale 3-am	oiguous 4-prob	able male 5-male
□ Rig □ Un Estimated Sex: □ Female (M	t ← Preferred standa tht• unable to score left able to score left or rig	ard t due to: □absei	nce 🗆 fragmenta	tion □ pathology
Vertical diameter of the hume	eral head 40.102	mr	1 (Accuracy of 73 – 8	32% (Spradley & Jantz 2011:294))
	ft ← Preferred stand		(	270 (0214410) 6 ,41141 10 11 11 15
1	ht, unable to score lef		nce 🗆 fragmenta	tion □ pathology
1 1	, able to score left or rig			
Estimated Sex: XFemale (<4	3 mm)			
☐ Indetermin	nate (44 – 46 mm)			
☐Male (>47 :	mm)			
:Maximum diameter of the fen	noral head 41.31	mn	1 (Accuracy of 88% (	Spradley & Jantz 2011:294))
	t ← Preferred standa			
☐ Rig	ght• unable to score lef	t due to: □abse	nce □fragmentat	ion $\square$ pathology
∐ Una	able to score left or rigl	nt due to:	•	
Estimated Sex: X Female (<	42.5 mm)□ Indetermi	nate (43.5 <b>-</b> 46.	5 mm) [Probab]	le Male (46.5 – 47.5 mm)
□ Pro	obable female (42.5 – 4	3.5 mm)		$\square$ Male (>47.5 mm)
Estimated Sex, Combined O			k is based on oste	
dashed boxes above. Given in				
, head, 2) Max length of talus,				
$^{ m V}$ summary data area on the to	p of this page.			
Estimated Sex:	<b>X</b> Female	□Indetermi	nate	□ Male

Estimated Age  Pubic Symphysis (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR □Male]  L: R: Based on Stage table in, Average Age: Range:  □Check box if casts used. □Unable to score due to pelvis of indeterminate sex  ▼Unable to score due to:pathology
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:  ▼Unable to score due to:
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc.)  Stage: Mean Age: Range:  *Scored Right side because left is: □ absent □ fragmented □ pathological □ other:  Munable to score left or right because both are □ absent □ fragmented ↑ pathological □ other:
<u>Cranial Suture Closure (Use left side when possible**)</u> $-=$ Unobservable $0 = $ Open $1 = $ Minimal Closure $2 = $ Significant Closure $3 = $ Complete Obliteration For any region where <i>all</i> cranial sutures are unobservable, check the box next to region heading.
External Cranial Vault Unobservable  1. Midlambdoid  2. Lambda  3. Obelion  4. Anterior Sagittal  5. Bregma  6. Midcoronal  7. Pterion  8. Sphenofrontal  9. Inferior Sphenotemporal  10. Superior Sphenotemporal  10. Superior Sphenotemporal  11. Incisive  12. Anterior Median Palatine  13. Posterior Median Palatine  14. Transverse Palatine  15. Sagittal  16. Left Lambdoid  17. Left Coronal  17. Left Coronal
**Indicate sutures (by number) you scored on the right side when scoring left was not possible:
Fragmentation; 15-17 mostly complete cranium  Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form). Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate.  Estimated Age:  Juvenile (<20 years)
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores. □ cranial suture and auricular surface scores due to missing pubic symphyses. ▼ only cranial suture scores due to missing pelvis. □ other:

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur <u>38 \</u> mm
Side measured: ☐ Left ← Preferred standard
🕱 Right. unable to score left due to: 🗌 absence 🔀 fragmentation 🗌 pathology
□Unable to score left or right due to:
Maximum length of the tibia mm  Side measured: ★ Left ← Preferred standard  □ Right. unable to score left due to: □ absence □ fragmentation □ pathology □ Unable to score left or right due to:

# **Comments Section:**

extreme macroporsity and disorganized riages on auricular surface

Age, Sex, and Stature Reco	rding Form - ADUI	Т	Burial No. 2	
German Evangelical Lutheran Cemetery (Stolz Site)			Buriar 1404	
BOZ0048/CU583/Collection's Loc	• •	torial Facility		
Observer Name: A.M.J. + J.J.				
SUMMARY DATA: Sex (non-met	ric): 🗆 Female 🗀 Pro	bable F emale	🗆 Ind.Sex 🗶 Probable Male	☐ Male
Sex (osteome Cat. Age: □Juvenile (<20 yrs) □Y	tric):   Female XInd.S	ex □Male □Mid Adult (25	En year) [[Old Adult (Ent year)	□Indeter Adult
Age Range: <u>24</u> - <u>82</u> years	Max Femur Length:		x Tibia Length: 369 m	m
Estimated Sex				
Non-metric cranial and postcra	<u>nial observations:</u> Con	nplete while fo	llowing instructions listed ir	ո The Manual).
Pelvis	L R	Skull	L	M R
Ventral Arc (1-3 or -)	_33_		est (1-5 or)	3_
Subpubic Concavity (1-3 or -) Ischiopubic Ramus Ridge (1-3	<u>ت                                    </u>		rocess (1-5 or -) 4 tal Margin (1-5 or -) 2	2
Greater Sciatic Notch (1-5 or -)	•	Glabella (1		_ <del></del>
Preauricular Sulcus (0-4 or -)	0 0		inence (1-5 or -)	3_
Estimated Sex, Pelvis (0	-5):_ <b>5</b> ←		timated Sex, Skull (0-5): <u>3</u>	
See p.p. 23-24 for instr				`
			estimating sex of Skull.	
See p. 29 for instructions to de				ations.
Estimated Sex, Combined score	based on non-metric o	bservations (0	5): 4	
Indicate the estimated (non-m				ت ماء
0-Indeterminate 1-femal	e 2-probably fe	male 3-am	biguous 4-probable male	5-male
<u>Osteometric data:</u>				
Maximum length of Talus:		-	Gentry-Steele (1978))	
(	← Preferred standa		nce $\square$ fragmentation $\square$ pat	hology
			thology + fragment	
Estimated Sex:  Female (Max	clength ≤ 51 mm)			
	ength ≥ 52 mm)			
Vertical diameter of the humer	al head 45.31	mn	1 (Accuracy of 73 – 82% (Spradley	& Jantz 2011:294))
l -	← Preferred standa			
, ·			nce $\square$ fragmentation $\square$ pat	
	-	it due to:		,
Estimated Sex:  Female (<43	te (44 – 46 mm)			
☐ Male (>47 m				
Maximum diameter of the femo	-	mi	n (Accuracy of 88% (Spradley & Jan	.t 2011 204))
1	← Preferred standar		ii (Accuracy of 00% (Sprauley & Jan	.cz 2011.27 1jj
			nce $\square$ fragmentation $\square$ patl	nology
□Unab	le to score left or righ	t due to:		
Estimated Sex:   Female (<4	2.5 mm) 🔀 Indetermir	nate (43.5 – 46	.5 mm) □Probable Male (46	5.5 – 47.5 mm)
☐ Prob	able female (42.5 – 43	3.5 mm)		Male (>47.5 mm)
Estimated Sex, Combined Ost				
dashed boxes above. Given inc				
head, 2) Max length of talus, an summary data area on the top		r of numeral n	eau. muicate the estimated (	metric) sex in the
Estimated Sex:	☐Female	<b>X</b> indetermi	nate $\square$ Male	

Estimated Age <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR MMale]  L: 5 R: 5 Based on Stage table in, Average Age: 48.1 Range: 25-83  □Check box if casts used. □Unable to score due to pelvis of indeterminate sex □Unable to score due to:
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc.)  Stage:
Cranial Suture Closure (Use left side when possible**)  - = Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration  For any region where all cranial sutures are unobservable, check the box next to region heading.
External Cranial Vault Unobservable  1. Midlambdoid 2. Lambda 3. Obelion 4. Anterior Sagittal 5. Bregma 6. Midcoronal 7. Pterion 8. Sphenofrontal 9. Inferior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 11. Incisive 11. Incisive 12. Anterior Median Palatine 12. Anterior Median Palatine 13. Posterior Median Palatine 14. Transverse Palatine 15. Sagittal 16. Left Lambdoid 17. Left Coronal 17. Left Coronal
**Indicate sutures (by number) you scored on the right side when scoring left was not possible:
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form). Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate.  Estimated Age:  Juvenile (<20 years) Young Adult (20-35 years) Middle Adult (35-50 years)  Old Adult (50+ years) Indeterminate adult
Individual's estimated age is based on

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur <u>445</u> mm
Side measured: ★ Left ← Preferred standard
$\square$ Right. unable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology
□Unable to score left or right due to:
Maximum length of the tibiamm
Side measured: ズLeft ← Preferred standard
$\square$ Right. unable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology
☐ Unable to score left or right due to:
<b>Q</b>

# **Comments Section:**

pubis + ishium have been glued

Juvenile Age Assessment Part I – FUSION Prenatal to Childhood German Evangelical Lutheran Cemetery (Stolz Site) BOZ0048/CU583/Collection's Location: UWM-ARL	Burial No. 3
Observer Name: A.M.J. + J.I.B. Date Started	l: 10 9 14 Date Completed: 10 9 1 14
SUMMARY AGE Category:  Prenatal (Prenatal – 2.49 y) Early Childhood (2.5 – 5.9 y)  AGE RANGE: 1 fw / pn m/ pn y to 1 fw  * 'fw' fetal weeks; 'pn m' postnatal months; 'pn y' postnatal years.	

# **FUSION OF OSSIFICATION CENTERS**

Use the Manual when completing this form. Record fusion data using the following codes: 0 = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when the feature is not observable.

Element	Primary Elements	Observation Code:	Fusion Complete
Sphenoid	Lesser Wings to Sphenoid Body	F	5 fm
1	Pre Sphenoid to Post Sphenoid Body	F	8 fm
	Greater Wings to Sphenoid Body		1 y
	Foramen Ovale (Greater Wing)	F	1 y
Temporal	Tympanic Ring to Temporal Squamous	F	35 fw
-	Petromastoid to Squamotympanic		1 y
Occipital	Supra-occipital to Interparietal Squama	_	5 fm
•	Superior Median Fissure	-	1 y
	Sutura Mendosa	u	1 y
	Partes Laterales to Squama	0	1 – 3 y
	Hypoglossal Canal (Pars Laterales)	olu	2 – 4 y
	Partes Laterales to Pars Basilaris	0	5 – 7 y
Mandible	Mandibular Symphysis		1 y
	Coronoid to main mass	F	By 8 f wks
Frontal	Fusion of L and R frontals	_	9 fm - 2 y
	Metopic Suture obliterated (generally)	-	2 – 4 y
Vertebrae	C1 - R & L Posterior arches (to one another)	0	4 – 5 y
	C1- Anterior arch to anterior bars	0	5 – 6 y
	C2- Intradental union (becomes Dens)	F	Full term
	C2- R & L Neural Arches (to one another)	0	3 – 4 y
	C2- Dens to Neural Arch	0	3 - 4 y
	C2- Centrum to Neural Arch	0	4 – 6 y
	C2- Ossiculum Terminale of dens	0	12 y
	C3-L5 Neural Arches (to one another)	0	1 – 2 y
	C3-L5 Neural Arches to Centra	0	2 – 5 y
Sacrum	Lateral Elements to Neural Arches → 'Wings'	Ó	2 – 5 y
(S1 and S2)	Wings to Centra	0	2 – 6 y
Os coxa	Ischiopubic ramus		5 – 11 y
Humerus	Greater and Lesser Tubercles to Head	0	2 – 6 y

<sup>\*&#</sup>x27;f m' indicates 'fetal month'; 'f wks' indicates 'fetal weeks'; 'm' indicates post natal months; and 'y' indicates postnatal years.

#### Estimated Age

Step 1) Age Range.

Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with 'O' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.

fetal weeks / postnatal months / postnatal years (circle unit)

fetal weeks / postnatal months / postnatal years (circle unit)

\*Remember to indicate the age range in the summary section on the top of page 1 of this form.

 $\square$  Indeterminate; i.e. no evidence to allow you to assign the individual to an age category. Procede to step 3.

Step 2) If you were able to provide an age range in step 1, skip this step and procede to step 3. If you selected 'indeterminate' in step 1 but your individual includes other evidence to allow you to assign the individual to an age category, indicate the information and the estimated age below. (e.g. petros portion compares favorably to individual 20 fetal weeks old). Then, use this information to select a categorical age in step 3.

Step 3) Age Category:

If you provided an age range in step 1, calculate the mean from of the ages and use the value to select an age category below.

Alternatively, if you arrived at step 3 following the directions in step 2, to proceed to assign your individual to an age category below based on the data you provided in step 2.

- Prenatal 2.5 years (Prenatal 2.49 years)
- Early Childhood (2.5 5 years)
- Late Childhood (6 12 years)
- Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

#### Comments:

# **JUVENILE AGE ASSESSMENT PART II form:**

Prenatal - 2.5 years (LMP - 2.5 years)

☐ Early Childhood (2.5 – 5 years)

☐ Late Childhood (6 – 12 years)

 $\hfill \square$  Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

Juvenile Age Assessment Part II- Pren German Evangelical Lutheran Cemetery BOZ0048/CU583/Collection's Location:	(Stolz Site)	Burial No. 3	
Observer Name: A.m.J. + J. I. B.	Date Started: ID 9 14 Date Completed: "		
Osteometric Age: Age range: 4 - 1.51	Fetus Neonate Infant	Toddler Indet	erminate erminate erminate erminate
NON-M Use and attach a Juvenile mixed dentition	etric dental age asse outline if that form is more appla not present. Mandible a	oropriate for your sub and Maxilla not pres	eeth glued  Illustration Key:  Articulated Tooth
Right	Maxilla, occlusal vi	iew Left	O Loose Tooth
			X Missing Tooth
$M_1$ $m_2$ $m$	1 c i 2 2i i 1 1i	1M 2m 1m	
Right	Mandibular, occlusal v	view Left	

# **Formation and Eruption Assessments**

Complete all assessments unless you are absolutely certain that your individual presents demonstrative evidence of prenatal or postnatal age. If you have *any uncertainty* about the individual's age, complete all assessments. Refer to the manual as you complete this form.

Mineralization Stages (Sunderland et al. 1987) Applied to prenatal individuals only. Use the table below to assign a fetal age to the individual based on the oldest age in weeks post fertilization (wpf) for mineralized teeth that are recorded as "Present." Indicate your answers in the fields below.

	Presence/Absence		Tooth	15 <sup>th</sup> %	Range
	LEFT	RIGHT	Tooth	(wpf):	(wpf):
Maxilla			di1	15	13 - 17
			di2	17	14 - 19
			dc	19	17 - 20
			dm1	16	14 - 17
			dm2	19	18 - 20
Mandible			di1	15	13 – 17
	,,,,,,		di2	17	14 - 19
			dc	19	17 - 20
			dm1	16	14 – 17
			dm2	19	18 - 20

1		9	inge:v	-
			(missing) 🗌 Fragmen	
Age is likely po	ostnatal; evidence	);	-	
Other:				
Evaluate the crov	vn and root devel latal individuals. I	opment status of the andicate the appropria	s to postnatal individuo mandibular canines, fi ate code and correspo	rst molar, and second
Mandibular		ion Stage Code	Estimated	d Age (years)
Tooth	Left	Right	Left	Right
c				
1m				
2m				
Unable to make a	ssessment due to	you were able to score :	nentation 🔲 Unable t	o observe complete
-		d profile not		
Formation and e Instructions: Esti matches your inc	eruption sequence mate the age of y lividual's. Indicate mt assessment due to	te following Ubelaker our subject lot by find the the age estimation in ths Estimated Age Ra to:	r <b>(1989)</b> ling the image within t	the MANUAL that best

# Eruption times (After Lysell et al. 1962, as presented in Scheuer & Black 2000:153)

Instructions: In the fields below, indicate whether a deciduous tooth is present or absent. Beneath the table, indicate the oldest mean age and age range given the teeth present.

	Tooth	Emerged past alveolar crest? (yes/no)	Mean (months)	Age Range +/- 1 SD (months)
	Central Incisor		10	8-12
	Lateral Incisor		11	9-13
Maxilla	Canine		19	16-22
	First Molar		16	13-19*
	Second Molar		29	25-33
	Central incisor		8	6-10
	Lateral incisor		13	10-16
Mandible	Canine		20	17-23
	First molar		16	14-18
	Second molar		27	23-31*

Mea	an Age:	mths	Age range:	_	+/- 1 SD	
Una	able to make as Missing [] Fra	ssessment due to: gmentation	able to observe too	th above alveola	ar crest. 🛛 Other: 🥱 🔾	red
Est	imated Age, C	ombined Nonme	tric Dental Assess	<u>ment</u>		
1)	Age Range: The given range as the non-metrica. Do results osteological designs of the second	te final estimated and the oldest mean of the oldest mean of dental age assess from one assessmal evidence? If so,	age range is the you n age or the oldest a sment methods abo nent disagree marko indicate the age ran	ingest mean age age of a given ag ove. edly from other: age, the assessm	e or the youngest age of e range derived from ar s and other extant nent, and contrary evide nge, but neonatal petros	ny of ence
	i. ii.	Age range: Contradictory ost	derive eological evidence:	d from the	Method.	
	you provi	led information in data besides that co	n a. (immediately ab llected within the no Unit: fetal weeks	oove), <i>do not use</i> n-metric dental as s/postnatal mor	on page one of your form it for the age range (be seessment for the age range iths/postnatal year (circuths/postnatal yea	<i>low).</i> ge. cle).
2)	mean score fr	om above when o	nly one exists.		ge scores or provide a s al year (circle one).	single
3)			egory (below) into in the summary se		you generate following ne of your form.	step
		Embryo (0-8 wee Fetus (9 – 40 wee Neonate (Birth – Infant (Birth – 11 Toddler (1 – 2.49 Indeterminate	28 days) 9 months) years)		Date:	<del>-</del> .

# **OSTEOMETRIC AGE ASSESSMENT - FETAL**

**Note:** The following osteometric assessments are applicable only to individuals determined to be prenatal based on forgoing fusion and dental assessments. See MANUAL for instructions on collecting measurements as well as deriving age estimations.

<u>Cranial Measurements</u> Occipital: Pars lateralis and Pars basilaris (Frazekas and Kosa 1978)

Occipital: Pars late Element	Measuremer	and construction of the second	Left (mm)	(mm)		ght (mm)	Age:	
and the second s	Maximum le	Control of the Contro	28.06	N/A		8.35		fw
Pars Basilaris   N	Maximum W MW)		N/A	10.32	N/			r fw
	Sagittal Leng	gth (SL)	N/A	16.03	N/	'A	40	+ fw
*If you were unable	to collect ar	ny measure	ments, indicat	e the reason	belov	v:		
Age estimation from The Pars Basilaris M.  Larger than the S	IW measure	ment value	(above) is	<i>auighlin-B</i> a n ≥ 30 fetal				
Smaller than the  Not applicable; u	SL measure	ment value	$\rightarrow$ the	n ≤ 28 fetal				
Sphenoid (Fazekas								
Measurement nar		Left (mm	) Centerlin	e Right (	mm)	Fetal Age		*Not
			(mm)				1	neasured?
Body -Length (BI	-)	N/A		N/A				
Body - Width (BV	V)	N/A		N/A				
Lesser Wing- Len			N/A					
Lesser Wing- Wid			N/A					
Greater Wing –Le			N/A					
Greater Wing – W (GWW)	idth.		N/A					
Temporal (Fazekas	s & Kosa 19	<i>78</i> )						
		<i>Left</i> (mm)	Right (mm)	Fetal Age		199		*Not measured?
Petrous - Length			38.71	40 -	+ fv	/		-
Petrous - Width								
Mandible, Maxilla,	and Zygom	a (Fazekas	& Kosa 1978	)				
	-		Left (mm)	Right (n	ım)	Fetal Age		Not easured?
Mandible -Lengtl	1							
Mandible - Width	1							
Mandible - Obliq	ue length							
Maxilla -Length								
Maxilla - Height								
Maxilla - Width								
Zygomatic- Lengt	:h							
Zygomatic – Oblid								
*Place a '√' in the fo		mns of table	s to indicate a	ny measurei	ments	you were u	nable	<u>to</u>
collect. If you need n								

Lot:\_\_\_\_\_

Date: \_\_\_\_

Postcranial Measurements

Shoulder elements and upper limbs (Fazekas & Kosa 1978)

Measurement name	Left	Right	Fetal Age	*Not
	(mm)	(mm)		measured?
Clavicle- Length				
Scapula –Length (height)				
Scapula – Width				
Scapula - Length of the Spine				
Humerus – Length (height)				
Humerus - Distal Width				
Radius – Length				
Ulna – Length				

Pelvic elements and lower limbs (Fazekas & Kosa 1978)

Measurement name	Left (mm)	Right (mm)	Fetal Age	*Not measured?
Maximum iliac length				
Maximum iliac width				
Maximum ischium length				
Maximum ischium width				
Maximum length of pubis				
Femur maximum length				
Femur distal width				
Tibia maximum length				
Fibula maximum length				

<sup>\*</sup>Place a '\' in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

# **COMMENTS:**

# OSTEOMETRIC AGE ASSESSMENT - POSTNATAL through 2.49 years

**Note:** The following osteometric assessments are applicable only to individuals with ages determined via fusion and dental assessments to be postnatal through 2.49 years of age. Methods follow Maresh (1970).

Element	Left (mm)	Epiphysis included?		NM*	Right (mm)	Epiphysis included?		NM*
Humerus		7	41.5 m		1010-17	7	< 1.5m	
Radius	52.14	2	41.5 m		52.18	N	41.5 m	
Ulna	58.71	N	41.5 m			-	-	
Femur	-	_			79.32	N	41.5 m	
Tibia	68.51	7	<1.5m		w8.91	2	41.5 m	
Fibula	_				43.74	N	41.5 m	

<sup>\*</sup>NM indicates Not measured. Place a '\sqrt{'} in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

#### **Comments:**

# Estimated Age, Combined osteometric

1)	Age Range: The final estimated age range is the youngest mean age or the youngest age of a given range
	and the oldest mean age or the oldest age of a given age range derived from the osteometric assessments above. Indicate this data in the fields below and in the summary section on page one of your form.
	Unit: fetal weeks/postnatal months/postnatal year (circle).
	41.5 m to
	Unit: fetal weeks/postnatal months/postnatal year (circle).
2)	Mean Age: Calculate the mean of the ages you provided in the age range (above) or provide a single mean age when only one exists.
	Unit: fetal weeks/postnatal months/postnatal year (circle).
3)	Select the age category (below) into which the value you generated following step 2) fits. Select the same category in the summary section on page one of your form.
	☐ Embryo (0-8 weeks or two lunar months) ☐ Fetus (9 – 40 weeks)
	Neonate (Birth - 28 days) Infant (Birth - 1 year) Toddler (1 - 2.49 years)  because all max lengths of elements were less than

Juvenile Age Assessment Part I – FUSION Prenatal to Childho German Evangelical Lutheran Cemetery (Stolz Site) BOZ0048/CU583/Collection's Location: UWM-ARL	ood Burial No. 4
Observer Name: A.m.J. + J.1.B. Date	Started: 10 12 14 Date Completed: 10 12/14
SUMMARY AGE Category: Prenatal (Prenatal – 2.49 y) Early Childhood (2.5 – 5.9 y) AGE RANGE: fw / pn m/ pn y to * 'fw' fetal weeks; 'pn m' postnatal months; 'pn y' postnatal years	y) □ Late Childhood (6-12.9 y) □ Indeterminate fw / pn m/ pn y □ Indeterminate 

# **FUSION OF OSSIFICATION CENTERS**

Use the Manual when completing this form. Record fusion data using the following codes: O = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when the feature is not observable.

Element	Primary Elements	Observation Code:	Fusion Complete
Sphenoid	Lesser Wings to Sphenoid Body	F	5 fm
	Pre Sphenoid to Post Sphenoid Body	F	8 fm
	Greater Wings to Sphenoid Body	F	1 y
	Foramen Ovale (Greater Wing)	F	1 y
Temporal	Tympanic Ring to Temporal Squamous	-	35 fw
	Petromastoid to Squamotympanic		1 y
Occipital	Supra-occipital to Interparietal Squama	F	5 fm
	Superior Median Fissure	F	1 y
	Sutura Mendosa	F	1 y
	Partes Laterales to Squama	F	1 – 3 y
	Hypoglossal Canal (Pars Laterales)	-cort	2 – 4 y
	Partes Laterales to Pars Basilaris		5 – 7 y
Mandible	Mandibular Symphysis		1 y
	Coronoid to main mass		By 8 f wks
Frontal	Fusion of L and R frontals	F	9 fm - 2 y
	Metopic Suture obliterated (generally)	u	2 – 4 y
Vertebrae	C1 - R & L Posterior arches (to one another)		4 – 5 y
	C1- Anterior arch to anterior bars		5 - 6 y
	C2- Intradental union (becomes Dens)	-	Full term
	C2- R & L Neural Arches (to one another)	-	3 – 4 y
	C2- Dens to Neural Arch		3 - 4 y
	C2- Centrum to Neural Arch		4 – 6 y
	C2- Ossiculum Terminale of dens	_	12 y
	C3-L5 Neural Arches (to one another)	F	1 – 2 y
	C3-L5 Neural Arches to Centra	0	2 – 5 y
Sacrum	Lateral Elements to Neural Arches → 'Wings'	u	2 – 5 y
(S1 and S2)	Wings to Centra	и	2 – 6 y
Os coxa	Ischiopubic ramus	-	5 – 11 y
Humerus	Greater and Lesser Tubercles to Head	0	2 – 6 y

<sup>\*&#</sup>x27;f m' indicates 'fetal month'; 'f wks' indicates 'fetal weeks'; 'm' indicates post natal months; and 'y' indicates postnatal years.

#### Estimated Age

Step 1) Age Range.

Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with 'O' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.

2-10 fetal weeks / postnatal months / postnatal years (circle unit)

fetal weeks / postnatal months / postnatal years (circle unit)

☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category. Procede to step 3.

Step 2) If you were able to provide an age range in step 1, skip this step and procede to step 3. If you selected 'indeterminate' in step 1 but your individual includes other evidence to allow you to assign the individual to an age category, indicate the information and the estimated age below. (e.g. petros portion compares favorably to individual 20 fetal weeks old). Then, use this information to select a categorical age in step 3.

#### Step 3) Age Category:

If you provided an age range in step 1, calculate the mean from of the ages and use the value to select an age category below.

Alternatively, if you arrived at step 3 following the directions in step 2, to proceed to assign your individual to an age category below based on the data you provided in step 2.

- Prenatal 2.5 years (Prenatal 2.49 years)
- Early Childhood (2.5 5 years)
- Late Childhood (6 12 years)
- Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

#### Comments:

Individual must be  $\geq 1$  but  $\leq 1$  based on fusion centers examined. Greatest overlap in 2-3 range.

#### **JUVENILE AGE ASSESSMENT PART II form:**

- ☐ Prenatal 2.5 years (LMP 2.5 years)
- ☐ Early Childhood (2.5 5 years)
- ☐ Late Childhood (6 12 years)
- ☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

<sup>\*</sup>Remember to indicate the age range in the summary section on the top of page 1 of this form.

Juvenile Age Assessment Part I – FUSION Childhood - Adolescence German Evangelical Lutheran Cemetery (Stolz Site) BOZ0048/ CU583/Collection's Location: UWM-ARL	Burial No	. 4	
Observer Name: A.M.J. + J. J. B. Date Started	10/12/14	Date Completed: 10 12	14
SUMMARY: Atate Childhood (6-12.9 years) Adolescent (13-19.9 ye Indeterminate	ars) [Your	ıg Adult (≥ 20 years)	

## **FUSION ASSESSMENT**

Complete all boxes with the following codes: O = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when feature is not observable and data cannot be recorded.

		Observation Code:	Union Begins	Fusion Complete
	Proximal	0	14	21
Humerus	Medial	Ö	13	18
	Distal	0	11	18
	Proximal	-	12	18
Radius	Distal	-	14	20
1	Proximal	-	12	18
Ulna	Distal	_	15	20
Hand	Metacarpals & Phalanges	0	11	18
Femur	Head	_	14	19
	Greater Trochanter	_	14	19
	Lesser Trochanter	-	14	19
	Distal	-	14	20
Tibia	Proximal	-	14	20
	Distal	_	14	18
Fibula	Proximal		14	20
	Distal	_	14	20
Foot	Calcaneus		10	20
	Metacarpals & Phalanges	_	11	16
Scapula	Coracoid-Glenoid Complex*	0	11	18
	Acromion	0	14	20
	Inferior Angle	0	15	23
	Medial Border	0	15	23
Pelvis	Tri-radiate Complex**	0	10	18
	Anterior Inferior Iliac Spine	0	10	18
	Ischial Tuberosity	_	13	20
The state of the s	Iliac Crest	0	14	22
Sacrum	Auricular Surface	0	15	21
	S1-S2 Bodies	0	14	25+
	S1-S2 Alae	0	11	27
	S2-S5 Bodies	0	12	28
	S2-S5 Alae	0	14	21
Vertebrae	Bodies	0	13	23
Ribs	Heads	0	17	22
Clavicle	Medial	0	12	29+
Manubrium	1st Costal Notch		18	25

Juvenile Age Recording German Evangelical Luth BOZ0048/CU583/Collect	Burial l	No. 4	
Observer Name: A.m.J	Date Started: 10 12 14  Date Completed: ""		
Late Childhoo Osteometric Age Rar	d (6 – 12.9 y) Adolescent (13 – 19.9 y) In	determinate Ju Early Childh	ood (2.5 – 5.9 y)
	NON-METRIC DENTAL AGE ASSE		
Permanent teeth encir $Dentition \square$ No Dentition	cle line drawings of the deciduous den	tition. See m	anual for tooth guide.
	Maxilla (Labial)		
		· · · · · · · · · · · · · · · · · · ·	Illustration Key:  Articulated Tooth
			O Loose Tooth
	ES N	À	X Missing Tooth
		图图	
Right			Left

Mandible (Labial)

# <u>Moorres Tooth Formation and Resorption Assessments (1963a,b)</u> <u>Deciduous tooth formation stages (Moorrees et al. 1963a)</u>

Deciduous mandibular tooth	Formation Stage Code (Use Table in Manual)		Not Scored*			Not Scored*
164 J. G.	Left	Right		Left	Right	
Canine						
1 <sup>st</sup> Molar						
2 <sup>nd</sup> Molar						

	Left	Right		Left	Right	
Canine						
1st Molar						
2 <sup>nd</sup> Molar						
Indicate reason tooth not	assessed	by checking the	e appropriate	boxes belo	ow.	
Jnable to make assessmen			th/Teeth □F	ragmente	d Tooth/Teeth	1
$\square$ Tooth/Teeth articulated $\circ$	with alve	olar bone.				
Comments:						
<u>Deciduous tooth resorption</u>	stages, if	applicable (Mo	<u>orrees et al. 1</u>	963a)		
Deciduous		ation Stage Coo			nated Age	Not
mandibular tooth	(Use	Гable in Manua	ıl) scored*	(Use tab	le in Manual)	scored*
	Left	Right		Left	Right	
Canine						
1st Molar - mesial root						
1st Molar – distal root						
2 <sup>nd</sup> Molar – mesial root						
2 <sup>nd</sup> Molar – distal root	<u> </u>					
*Indicate reason tooth not Unable to make assessmen	ts due to	Missing Too	th/Teeth □	ragmente	d Tooth/Teetl	1
☐ Tooth/Teeth articulated			til/ reetil 🗀	ragmente	a room, reen	•
Comments:	with are	olar bone.				
Permanent Tooth formation	n staaes (	Moorrees et al	1963h)			
rermanent Tooth jornation	r stuges (		1 Stage Code		Mean A	ge
Permanent Tooth			e in Manual)	(Use tables in M		
7 014114110114 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Left	Right	L	eft	Right
1st Incisor (Maxilla)						
2 <sup>nd</sup> Incisor (Maxilla)						
1st Incisor (Mandible)						
2 <sup>nd</sup> Incisor (Mandible)						
Canine (Mandible)						
1st Premolar (Mandible)						
2 <sup>nd</sup> Premolar (Mandible)	)					
1 <sup>st</sup> Molar (Mandible)						
2 <sup>nd</sup> Molar (Mandible)						
3 <sup>rd</sup> Molar (Mandible)		· · · · · · · · · · · · · · · · · · ·				
*Indicate reason tooth not	assessed	by checking th	ie appropriate	boxes bel	ow.	
Unable to make assessmen	its due to	: Missing Too	th/Teeth	Fragmente	d Tooth/Teetl	h
☐ Tooth/Teeth articulated			,	O	,	
Comments:						

Unable to make assessments due to: Limissing Toothy reem	in aginemed room, reem	
$\square$ Tooth/Teeth articulated with alveolar bone.		
Comments:		

Formation and eruption sequence following Ubelaker (1989)
Instructions: Estimate the age of your subject lot by finding the image within the MANUAL that best
matches your individual's dentition. Indicate the age estimation in the fields below:
Estimated Age: 5 y + 10 mo years Unable to make assessment due to:    Missing   Fragmentation   Other:
Non-metric Dental Age Assessment, Combined Results
1) Age Range:
The final estimated age range is the youngest mean age or the youngest age of a given range and the oldest mean age or the oldest age of a given age range derived from any of the non-metric dental age assessment methods above. Indicate this data in the fields below and in the summary section on page one of your form.
Age range: 3v 8mo - 10v 4 mD years.
Age range: <u>34 Bmo - b4 4 mo</u> years. 3. <b>bb7</b> b.333
2) Mean Age. Calculate the average of the oldest and youngest mean age scores or provide a single mean score from above when only one exists.
Mean Age: years
3) <i>Age Category.</i> Select the age category (below) into which the value you generate following step 2) fits. Select the same category in the summary section on page one of your form.
Early Childhood (2.5 – 5.9 years)  Late Childhood (6 – 12.9 years)  Adolescent (13 – 19.9 years)  Indeterminate
Lot: Date:

# OSTEOMETRIC AGE ASSESSMENT

Element	Left (mm)	Epiphysis included?		NM*		Epiphysis included?		NM*
Humerus	191.51	N	Ley		187.63	7	5.5Y	
Radius			1					
Ulna								
Femur								
Tibia								
Fibula								

\*NM indicates Not measured. Place a '\sqrt{'} in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

Est	imated Age, Combined osteometric
1)	The final estimated age range is the youngest mean age or the youngest age of a given range and the oldest mean age or the oldest age of a given age range derived from the osteometric assessments above. Indicate this data in the fields below and in the summary section on page one of your form.  Age range: 5.5 - W Unit: fetal weeks/postnatal months/postnatal year (circle).
2)	Calculate the mean of the ages you provided in the age range (above) or provide a single mean age when only one exists.  Mean Age: 5.75 Unit: fetal weeks/postnatal months/postnatal year (circle one).
3)	Age Category. Select the age category (below) into which the value you generate following step 2) fits. Select the same category in the summary section on page one of your form.
	<ul><li></li></ul>

Juvenile Age Assessment Part I – FUSION Childhood - Ad German Evangelical Lutheran Cemetery (Stolz Site) BOZ0048/ CU583/Collection's Location: UWM-ARL	dolescence Burial No. <u>5</u>
Observer Name: A.M.J. + J.I.B.	Date Started: 10 9 14 Date Completed: 10 9 14
SUMMARY: Late Childhood (6-12.9 years) Adolescen Indeterminate	t (13-19.9 years) □ Young Adult (≥ 20 years)

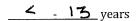
## **FUSION ASSESSMENT**

Complete all boxes with the following codes: 0 = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when feature is not observable and data cannot be recorded.

		Observation	Union	Fusion
		Code:	Begins	Complete
	Proximal	0	14	21
Humerus	Medial	0	13	18
	Distal	0	11	18
m 1:	Proximal	0	12	18
Radius	Distal	6	14	20
T11	Proximal	_	12	18
Ulna	Distal	-	15	20
Hand	Metacarpals & Phalanges	-	11	18
Femur	Head		14	19
	Greater Trochanter	-	14	19
	Lesser Trochanter	-	14	19
	Distal		14	20
Tibia	Proximal	•	14	20
	Distal	_	14	18
Fibula	Proximal	0	14	20
**	Distal	-	14	20
Foot	Calcaneus	-	10	20
	Metacarpals & Phalanges	-	11	16
Scapula	Coracoid-Glenoid Complex*	_	11	18
	Acromion		14	20
	Inferior Angle	-	15	23
	Medial Border	- ·	15	23
Pelvis	Tri-radiate Complex**	-	10	18
	Anterior Inferior Iliac Spine		10	18
	Ischial Tuberosity	-	13	20
	Iliac Crest	_	14	22
Sacrum	Auricular Surface		15	21
	S1-S2 Bodies	-	14	25+
	S1-S2 Alae	_	11	27
	S2-S5 Bodies	-	12	28
	S2-S5 Alae	_	14	21
Vertebrae	Bodies	_	13	23
Ribs	Heads	-	17	22
Clavicle	Medial	_	12	29+
Manubrium	1st Costal Notch	-	18	25

## Estimated Age based on Fusion

1) Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with '0' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.



- 2) Use the mean of the ages you provided for your estimated age range, to assign the individual to an age category below:
- o Late Childhood (6-12.9 y)
- o Adolescent (13 19.9 y)
- o Young Adult (≥ 20 years)

Comments:

	<b>.</b>						
Juvenile Age Recording Form Part II Early Childhood - Adolescence German Evangelical Lutheran Cemetery (Stolz Site) BOZ0048/CU583/Collection's Location: UWM-ARL	Burial No. <u>5</u>						
Observer Name: A.M.J. + J.I.B. Date Started: 10 9 14 Date Completed: " 1'							
SUMMARY DATA:  Dental Age Range: years							
<b>NON-METRIC DENTAL AGE ASSESSME</b> Permanent teeth encircle line drawings of the deciduous dentition. $\square$ No Dentition							
Maxilla (Labial)							
	Illustration Key:  Articulated Tooth						
	O Loose Tooth						

Right Left

Mandible (Labial)

X Missing Tooth

# <u>Moorres Tooth Formation and Resorption Assessments (1963a,b)</u> <u>Deciduous tooth formation stages (Moorrees et al. 1963a)</u>

Deciduous mandibular tooth	Formation Stage Code (Use Table in Manual)		Not Scored*	Estimated Age (Use tables in Manual)		Not Scored*
	Left	Right		Left	Right	
Canine						
1 <sup>st</sup> Molar						
2 <sup>nd</sup> Molar						

	Left	Right		Left	Right	
Canine						
1st Molar						
2 <sup>nd</sup> Molar						
*Indicate reason tooth not a						
Unable to make assessment			i/Teeth □F	'ragmente	d Tooth/Teeth	l
☐ Tooth/Teeth articulated w	<i>r</i> ith alveol	ar bone.				
Comments:						
Deciduous tooth resorption s	stages, if a	pplicable (Moor	<u>rrees et al. 19</u>			
Deciduous		tion Stage Code			nated Age	Not
mandibular tooth	(Use Ta	able in Manual)	scored*	(Use tabl	le in Manual)	scored*
	Left	Right		Left	Right	
Canine						
1 <sup>st</sup> Molar - mesial root						
1st Molar – distal root						
2 <sup>nd</sup> Molar – mesial root						
*Indicate reason tooth not a		<u> </u>				
Unable to make assessment ☐ Tooth/Teeth articulated v Comments:  Permanent Tooth formation	vith alveol	ar bone.	9 <u>63b)</u>		Mean A	ge .
Permanent Tooth		(Use Table	n Manual)	(	Use tables in I	Manual)
		Left	Right	L	eft	Right
1st Incisor (Maxilla)						
2 <sup>nd</sup> Incisor (Maxilla)						
1st Incisor (Mandible)						
2 <sup>nd</sup> Incisor (Mandible)						
Canine (Mandible)						
1st Premolar (Mandible)						
2 <sup>nd</sup> Premolar (Mandible)						
1st Molar (Mandible)						
2 <sup>nd</sup> Molar (Mandible)						
3 <sup>rd</sup> Molar (Mandible)						
*Indicate reason tooth not a	assessed b	y checking the	appropriate	boxes bel	ow.	
Unable to make assessment	ts due to: l	□Missing Tootl				n
☐ Tooth/Teeth articulated v	with alveo	lar bone.				
Comments:						

Formation and eruption sequence following Ubelaker (1989) Instructions: Estimate the age of your subject lot by finding the image within the MANUAL that best matches your individual's dentition. Indicate the age estimation in the fields below:
Estimated Age:
Non-metric Dental Age Assessment, Combined Results  1) Age Range:  The final estimated age range is the youngest mean age or the youngest age of a given range and the oldest mean age or the oldest age of a given age range derived from any of the non-metric dental age assessment methods above. Indicate this data in the fields below and in the summary section on page one of your form.  Age range: years.
2) Mean Age. Calculate the average of the oldest and youngest mean age scores or provide a single mean score from above when only one exists. Mean Age: years
3) Age Category. Select the age category (below) into which the value you generate following step 2) fits. Select the same category in the summary section on page one of your form.   Early Childhood (2.5 – 5.9 years)  Late Childhood (6 – 12.9 years)  Adolescent (13 – 19.9 years)  Indeterminate  Lot:

# OSTEOMETRIC AGE ASSESSMENT

Measure the maximum length of complete limbbones following Maersh (1970)

Element	Left (mm)	Epiphysis included?		NM*	Right (mm)	Epiphysis included?	Age:	NM*
Humerus	143.99	N	2.54					
Radius					104.12	N	2.5 Y	
Ulna								
Femur								
Tibia								
Fibula								

\*NM indicates Not measured. Place a 'V' in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below

<u>Est</u>	timated Age, Combined osteometric
1)	The final estimated age range is the youngest mean age or the youngest age of a given range and
-	the oldest mean age or the oldest age of a given age range derived from the osteometric assessments above. Indicate this data in the fields below and in the summary section on page
	one of your form.  Age range: 2.5 Unit: fetal weeks/postnatal months/postnatal year (circle).

	one of your form.  Age range: 2.5 Unit: fetal weeks/postnatal months/postnatal year (circle).
2)	Calculate the mean of the ages you provided in the age range (above) or provide a single mean age when only one exists.
	Mean Age:Unit: fetal weeks/postnatal months/postnatal year (circle one).
3)	Age Category. Select the age category (below) into which the value you generate following step 2) fits. Select the same category in the summary section on page one of your form.
	Early Childhood (2.5 – 5.9 years)
	Late Childhood (6 – 12.9 years)
	Adolescent (13 – 19.9 years)
	Indeterminate Juvenile

Age, Sex, and Statu	re Recording Form – AD	OULT	Burial No. (0	
	neran Cemetery (Stolz Site)			
_	tion's Location: UWM –ARL&C	Curatorial Facility		
Observer Name: A.M.J	. + J.I.B. Date: 4 11	0/14		
SUMMARY DATA: Sex ( Sex ( Cat. Age: □Juvenile (<20	non-metric):  Female (osteometric):  Female I in yers) Young Adult (20-35 ye	Probable F emale nd.Sex Male rs) Mid. Adult (35	☐ Ind.Sex ☐ Probable Male 🕱 -50 yrs) ☐ Old Adult (50+ yrs) ☐ In	
Age Range: 23 - <u></u> <b>4 10</b> 9	years Max Femur Length:	477mm Ma	x Tibia Length: 384 mm	
Pelvis Ventral Arc (1-3 or -) Subpubic Concavity (1 Ischiopubic Ramus Ric Greater Sciatic Notch Preauricular Sulcus (0 Estimated Sex, See p.p. 23-24 See p. 29 for instruction Estimated Sex, Combine	L 2 2 2 2 2 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4	Nuchal Cre Nuchal Cre Mastoid Pr Supraorbit Glabella (1 Mental Em Est ing sex of the pelv or instructions on Combined score ic observations (0- mmary section on	inence (1-5 or -) imated Sex, Skull (0-5): 4 is. estimating sex of Skull. based on non-metric observation  5): 5	1 R 5 <u>4</u> <u>4</u> 5 4
☐ Mal  Vertical diameter of the Side measured:  Estimated Sex: ☐ Fem ☐ Ind.	□ Left ← Preferred star □ Right. unable to score left or in ale (Max length ≤ 51 mm)  e (Max length ≥ 52 mm)  he humeral head 49.72 □ Left ← Preferred star □ Right. unable to score left or in the s	left due to: □abseright due to: _ <b>abs</b> eright due to: _ <b>abs</b> eright due to: □abseright due	nce	ntz 2011:294))
Maximum diameter of Side measured:	the femoral head <u>52.0</u> Left ← Preferred star □ Right, unable to score □Unable to score left or r	idard left due to: □abse	n (Accuracy of 88% (Spradley & Jantz 20	
Estimated Sex, Comb dashed boxes above. ( head, 2) Max length o summary data area or	☐ Probable female (42.5 ined Osteometric: Combing Given incongruous results, of talus, and 3) vertical diamonthe top of this page.	<ul> <li>43.5 mm)</li> <li>ed estimated is seconsider the rank of the earth of humeral hearth</li> </ul>	x is based on osteometric data rorder of accuracy: 1) max diamead. Indicate the estimated (me	le (>47.5 mm) recorded in eter of femoral
Estimated Sex:	□Female	□Indetermi	nate 🔀 Male	

Estimated Age <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR Male]  L: 4 R: 4 Based on Stage table in, Average Age: 38.2 Range: 20-10  □Check box if casts used. □Unable to score due to pelvis of indeterminate sex □Unable to score due to:
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:  □Unable to score due to:
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc.)  Stage:
<u>Cranial Suture Closure (Use left side when possible**)</u> -= Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration For any region where <i>all</i> cranial sutures are unobservable, check the box next to region heading.
External Cranial Vault ☐ Unobservable  1. Midlambdoid 2. Lambda 3. Obelion 4. Anterior Sagittal 5. Bregma 6. Midcoronal 7. Pterion 8. Sphenofrontal 9. Inferior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 10. Superior Sphenotemporal 11. Incisive 12. Anterior Median Palatine 13. Posterior Median Palatine 13. Posterior Median Palatine 14. Transverse Palatine 14. Transverse Palatine 15. Sagittal 16. Left Lambdoid 17. Left Coronal 17. Left Coronal
**Indicate sutures (by number) you scored on the right side when scoring left was not possible: 10 Indicate sutures (by number) you were unable to observe and why: 11-17 no maxillac + rest of cranium complete
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form). Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate. Estimated Age:  ☐ Juvenile (<20 years) ☐ Young Adult (20-35 years) ☐ Middle Adult (35-50 years) ☐ Indeterminate adult
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores. □ cranial suture and auricular surface scores due to missing pubic symphyses. □ only cranial suture scores due to missing pelvis.  ▼ other: All pelvis, some cranial

# **Estimated Stature**

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur mm  Side measured:   Left ← Preferred standard  Right• unable to score left due to: □ absence □ fragmentation □ pathology
☐ Unable to score left or right due to:
Side measured:  ☐ Right• unable to score left due to: ☐ absence ☐ fragmentation ☐ pathology ☐ Unable to score left or right due to: ☐

**Comments Section:** 

Age, Sex, and Stature Recording F		Burial No.
German Evangelical Lutheran Cemetery (St	tolz Site)	
BOZ0048/CU583/Collection's Location: UV	VM –ARL&Curatorial Facility	
Observer Name: A.M.J. +J.I.B.	Date: 4 10 14	
SUMMARY DATA: Sex (non-metric):	Female Probable Female	□ Ind.Sex □ Probable Male 🕱 Male
	Female □ Ind.Sex <b>X</b> Male ult (20-35 yrs) <b>X</b> Mid. Adult (35 nur Length: <b>48</b> 0mm Ma	-50 yrs) □Old Adult (50+ yrs) □Indeter. Adult x Tibia Length:m
Pelvis Ventral Arc (1-3 or -) Subpubic Concavity (1-3 or -) Ischiopubic Ramus Ridge (1-3 or -) Greater Sciatic Notch (1-5 or -) Preauricular Sulcus (0-4 or -) Estimated Sex, Pelvis (0-5): See p.p. 23-24 for instructions	L R Skull  Nuchal Cre  Mastoid Pr  Supraorbit  Glabella (1  - O Mental Em	inence (1-5 or -)  imated Sex, Skull (0-5):  is.
See p. 29 for instructions to derive Esti		
Osteometric data:  Maximum length of Talus:  Side measured: □ Left ← Pre □ Right• unable	x in the summary section on 2-probably female 3-am  _mm (Accuracy 80 % following ferred standard e to score left due to: □abse ore left or right due to: _abse ≤ 51 mm)	the top of this page.  Diguous 4-probable male 5-male  Gentry-Steele (1978))  The Gragmentation I pathology
☐ Right• unabl	eferred standard e to score left due to: □abse ore left or right due to: عطم	(Accuracy of 73 – 82% (Spradley & Jantz 2011:294))  nce  fragmentation  pathology  sen +
1 '	ferred standard	n (Accuracy of 88% (Spradley & Jantz 2011:294)) nce □fragmentation □ pathology
☐ Probable fen  Estimated Sex, Combined Osteometri  dashed boxes above. Given incongruou	nale (42.5 – 43.5 mm)  ic: Combined estimated is sexus results, consider the rank of the r	5 mm) Probable Male (46.5 – 47.5 mm)  Male (>47.5 mm)  is based on osteometric data recorded in order of accuracy: 1) max diameter of femoral and. Indicate the estimated (metric) sex in the mate

Estimated Age <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR ☒Male]  L: R: Based on Stage table in, Average Age: 48.1 Range: 25-83  ☑Check box if casts used. □Unable to score due to pelvis of indeterminate sex □Unable to score due to:
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age: Range:  ZUnable to score due to:
Auricular Surface (Score left side only except* in cases where right side is absent, fragmented, pathological, etc.)  Stage: Mean Age: Range:  *Scored Right side because left is: □ absent □ fragmented □ pathological □ other:  Munable to score left or right because both are □ absent □ fragmented ↑ pathological □ other:
<u>Cranial Suture Closure (Use left side when possible**)</u> - = Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure 3 = Complete Obliteration For any region where <i>all</i> cranial sutures are unobservable, check the box next to region heading.
External Cranial Vault  Unobservable  1. Midlambdoid
**Indicate sutures (by number) you scored on the right side when scoring left was not possible:
Estimated Age, Combined: (indicate the estimated age category in the summary section on page 1 of this form). Select the most appropriate age category based on all age data collected. However, when pubic symphysis and cranial suture scores provide divergent age estimates, defer to the pubic symphysis age estimate. Estimated Age:  ☐ Juvenile (<20 years) ☐ Young Adult (20-35 years) ☐ Middle Adult (35-50 years) ☐ Indeterminate adult
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores. □ cranial suture and auricular surface scores due to missing pubic symphyses. □ only cranial suture scores due to missing pelvis.  ✓ other: _pubic symphyses + aricular surface

## **Estimated Stature**

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur <u>480</u> mm
Side measured: ☐ Left ← Preferred standard
🔀 Right• unable to score left due to: 🔀 absence 🗆 fragmentation 🗆 pathology
□Unable to score left or right due to:
Maximum length of the tibia mm
Side measured: ☐ Left ← Preferred standard
$\square$ Right. unable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology
Unable to score left or right due to: absent

## **Comments Section:**

Age, Sex, and Statur	e Recording For	m – ADULT	Burial No. 8	
German Evangelical Lutheran Cemetery (Stolz Site)				
BOZ0048/CU583/Collection's Location: UWM -ARL&Curatorial Facility				
Observer Name: A.M.J	. <b>+ J. l. B.</b> Dat	e: 4/10/14		
SUMMARY DATA: Sex (	non-metric): 🗆 Fe	male □ Probable Female nale □ Ind.Sex □Male	☐ Ind.Sex ☐ Pro	bable Male 💢 Male
Cat. Age: □Juvenile (<20	yrs) □Young Adult	(20-35 yrs) <b>⊠</b> Mid. Adult (3 • <b>Length: NA</b> mm M	5-50 yrs) □Old Adul ax Tibia Length:_ <b>2</b>	lt (50+ yrs) □Indeter. Adult 850 mm
Estimated Sex				
Non-metric cranial and Pelvis	•	<u>vations:</u> Complete while f L R <i>Skull</i>	ollowing instructio	ons listed in The Manual). L M R
Ventral Arc (1-3 or -)		Nuchal C	rest (1-5 or)	******************
Subpubic Concavity (1	-3 or -)	Mastoid I	Process (1-5 or -)	
Ischiopubic Ramus Ric			ital Margin (1-5 or	·-)
Greater Sciatic Notch	(1-5 or -)	<b>4</b> _ <b>-</b> Glabella (	1-5 or -)	
Preauricular Sulcus (0	-4 or -)	O Mental E	minence (1-5 or -)	***************************************
Estimated Sex,	Pelvis (0-5): <b>5</b>	$\sim$	stimated Sex, Skull	(0-5):
See p.p. 23-24	for instructions on	estimating sex of the pel	vis.	$\uparrow$
	Se	e p. 28 for instructions of	n estimating sex of	Skull.
See p. 29 for instruction	ons to derive Estim	ated Sex, Combined score	based on non-met	tri <u>c obser</u> vations.
	(non-metric) sex i	on-metric observations (on the summary section on opposite the probably female and section of the section of th		
Osteometric data: Maximum length of Ta Side measured:  Estimated Sex: □ Fem □ Mal	☐ Left ← Prefer ☐ Right• unable t 【 Unable to score	rred standard o score left due to: □abs e left or right due to: <u> </u>	ence □ fragmentat	tion   pathology
Vertical diameter of th			m (Accuracy of 73 – 8	2% (Spradley & Jantz 2011:294))
Side measured:	<b>X</b> Left ← Prefer			
*	0	o score left due to: $\square$ abs	ence 🗆 fragmentat	tion $\square$ pathology
·		e left or right due to:		
Estimated Sex: 🗷 Fem				
	eterminate (44 – 46 e (>47 mm)	6 mm)		
Maximum diameter of	the femoral head	n	im (Accuracy of 88% (	Spradley & Jantz 2011:294))
Side measured:	□Left ← Prefer			
:	☐ Right• unable t	o score left due to: □abs	ence □fragmentat	ion 🗆 pathology
		left or right due to: _ak		
Estimated Sex: 🗆 Fer	male (<42.5 mm)□	Indeterminate (43.5 – 4 le (42.5 – 43.5 mm)		e Male (46.5 – 47.5 mm) □Male (>47.5 mm)
Estimated Sex. Comb			ex is based on oste	ometric data recorded in
				: 1) max diameter of femoral
				estimated (metric) sex in the
summary data area or	_			
Estimated Sex:	¥ Female	□Indeterm	inate	□ Male

Estimated Age <u>Pubic Symphysis</u> (Score left and right sides by indicate score in lines following	ng 'L' and 'R' fields, respectively)
Suchey-Brooks (0-6) [Scores for □Female OR □Male]  L: R: Based on Stage table in, Average Age: □Check box if casts used. □Unable to score due to pelvis of indeterminate 【Unable to score due to: _absen+	Range:sex
Todd (1-10) [use ONLY for illiae of indeterminate sex]  L: R: Based on Stage table in SOP, Average Age:  Unable to score due to:	Range:
Auricular Surface (Score left side only except* in cases where right side is al Stage: 4 Mean Age: 47.8 Range: 20-75  □ *Scored Right side because left is: □ absent □ fragmented □ pathologica □ Unable to score left or right because both are □ absent □ fragmented □ pathologica	 l □other:
<u>Cranial Suture Closure (Use left side when possible**)</u> - = Unobservable 0 = Open 1 = Minimal Closure 2 = Significant Closure For any region where <i>all</i> cranial sutures are unobservable, check the box ne	
External Cranial Vault Unobservable  1. Midlambdoid  2. Lambda 3. Obelion 4. Anterior Sagittal  Palate  Stage: Avg:  Vault Composite Score	■ Unobservable  11. Incisive  12. Anterior Median Palatine  13. Posterior Median Palatine  14. Transverse Palatine  ranial (Internal)  Vault  Unobservable  15. Sagittal  16. Left Lambdoid  17. Left Coronal
Indicate sutures (by number) you were unable to observe and why:	
☐ Old Adult (50+ years) ☐ Indeterminate adult	wever, when pubic symphysis and
Individual's estimated age is based on  □ all cranial and pelvic data points. □ pubic symphysis; results conflicted with cranial suture scores. □ cranial suture and auricular surface scores due to missing pubic symphy □ only cranial suture scores due to missing pelvis. ☑ other: _auricular surface	ses.

## **Estimated Stature**

When possible, measure the left side. In addition to recording your scores in millimeters in the appropriate fields below, record the measurements in the Summary Data section on page one of the ADULT AGE, SEX, AND STATURE RECORDING FORM.

Maximum length of the femur	mm
Side measured: ☐ Left	
	nable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology
<b>⊠</b> Unable	o score left or right due to: absent
Maximum length of the tibia 3	<u>mm</u>
Side measured: 🛮 Left	← Preferred standard
☐ Right•	nable to score left due to: $\square$ absence $\square$ fragmentation $\square$ pathology
□ Unable	to score left or right due to:

## **Comments Section:**

Juvenile Age Assessment Part I – FUSION Prenatal to Childhood German Evangelical Lutheran Cemetery (Stolz Site) BOZ0048/CU583/Collection's Location: UWM-ARL	Burial No. 9
Observer Name: A.M.J. + J.J.B. Date Start	ed: 10 9 14 Date Completed: 10 9 14
SUMMARY AGE Category:  Prenatal (Prenatal - 2.49 y)   Early Childhood (2.5 - 5.9 y)   AGE RANGE:   fw / pn m/ pn y   to 9 fm - 2   fw' fetal weeks; 'pn m' postnatal months; 'pn y' postnatal years.	Late Childhood (6-12.9 y)

## **FUSION OF OSSIFICATION CENTERS**

Use the Manual when completing this form. Record fusion data using the following codes: 0 = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when the feature is not observable.

Element	Primary Elements	Observation Code:	Fusion Complete
Sphenoid	Lesser Wings to Sphenoid Body		5 fm
1	Pre Sphenoid to Post Sphenoid Body	_	8 fm
	Greater Wings to Sphenoid Body		1 y
	Foramen Ovale (Greater Wing)	-	1 y
Temporal	Tympanic Ring to Temporal Squamous	-	35 fw
•	Petromastoid to Squamotympanic		1 y
Occipital	Supra-occipital to Interparietal Squama		5 fm
•	Superior Median Fissure	-	1 y
	Sutura Mendosa	-	1 y
	Partes Laterales to Squama		1 – 3 y
	Hypoglossal Canal (Pars Laterales)	-	2 – 4 y
	Partes Laterales to Pars Basilaris	-	5 – 7 y
Mandible	Mandibular Symphysis	-	1 y
	Coronoid to main mass		By 8 f wks
Frontal	Fusion of L and R frontals		9 fm - 2 y
	Metopic Suture obliterated (generally)	0	2 – 4 y
Vertebrae	C1 - R & L Posterior arches (to one another)	0	4 – 5 y
	C1- Anterior arch to anterior bars	-	5 – 6 y
	C2- Intradental union (becomes Dens)	-	Full term
	C2- R & L Neural Arches (to one another)	-	3 – 4 y
	C2- Dens to Neural Arch	<b>-</b> .	3 – 4 y
	C2- Centrum to Neural Arch	_	4 – 6 y
	C2- Ossiculum Terminale of dens	in-	12 y
	C3-L5 Neural Arches (to one another)	-	1 – 2 y
	C3-L5 Neural Arches to Centra	-	2 – 5 y
Sacrum	Lateral Elements to Neural Arches → 'Wings'	-	2 – 5 y
(S1 and S2)	Wings to Centra		2 – 6 y
Os coxa	Ischiopubic ramus	_	5 – 11 y
Humerus	Greater and Lesser Tubercles to Head	-	2 – 6 y

<sup>\*&#</sup>x27;f m' indicates 'fetal month'; 'f wks' indicates 'fetal weeks'; 'm' indicates post natal months; and 'y' indicates postnatal years.

Estim	ated	Age

Step 1) Age Range.

Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with 'O' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.

fetal weeks / postnatal months / postnatal years (circle unit)

9fm-2Y fetal weeks / postnatal months / postnatal years (circle unit)

\*Remember to indicate the age range in the summary section on the top of page 1 of this form.

☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category. Procede to step 3.

Step 2) If you were able to provide an age range in step 1, skip this step and procede to step 3. If you selected 'indeterminate' in step 1 but your individual includes other evidence to allow you to assign the individual to an age category, indicate the information and the estimated age below. (e.g. petros portion compares favorably to individual 20 fetal weeks old). Then, use this information to select a categorical age in step 3.

Step 3) Age Category:

If you provided an age range in step 1, calculate the mean from of the ages and use the value to select an age category below.

Alternatively, if you arrived at step 3 following the directions in step 2, to proceed to assign your individual to an age category below based on the data you provided in step 2.

- Prenatal 2.5 years (Prenatal 2.49 years)
- Early Childhood (2.5 5 years)
- Late Childhood (6 12 years)
- Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

#### Comments:

No visible fusion of any markers. Gave range of youngest open suture.

Ì	UVENILE A	IGE ASSESSMENT PAR	Γ II form:

- ☐ Prenatal 2.5 years (LMP 2.5 years)
- ☐ Early Childhood (2.5 5 years)
- ☐ Late Childhood (6 12 years)
- ☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

NA

Juvenile Age Assessment Part I – FUSION Prenatal to Childhood German Evangelical Lutheran Cemetery (Stolz Site) BOZ0048/CU583/Collection's Location: UWM-ARL	Burial No. 10	
Observer Name: A.M.J. + J.1.6 Date Started	d: 10 9 14 Date Completed: 10 9 14	
SUMMARY AGE Category:  Prenatal (Prenatal – 2.49 y)	Late Childhood (6-12.9 y) Indeterminate // pn m/pn y Indeterminate	

# **FUSION OF OSSIFICATION CENTERS**

Use the Manual when completing this form. Record fusion data using the following codes: O = open, U = Fusion underway, or F = fusion complete, though not obliterated. Slash the box when the feature is not observable.

Element	Primary Elements	Observation Code:	Fusion Complete
Sphenoid	Lesser Wings to Sphenoid Body	_	5 fm
-	Pre Sphenoid to Post Sphenoid Body		8 fm
	Greater Wings to Sphenoid Body	-	1 y
	Foramen Ovale (Greater Wing)	-	1 y
Temporal	Tympanic Ring to Temporal Squamous	-	35 fw
_	Petromastoid to Squamotympanic	-	1 y
Occipital	Supra-occipital to Interparietal Squama	-	5 fm
-	Superior Median Fissure	-	1 y
	Sutura Mendosa	~	1 y
	Partes Laterales to Squama	-	1 – 3 y
	Hypoglossal Canal (Pars Laterales)		2 – 4 y
	Partes Laterales to Pars Basilaris	-	5 – 7 y
Mandible	Mandibular Symphysis	-	1 y
	Coronoid to main mass	454	By 8 f wks
Frontal	Fusion of L and R frontals	6	9 fm - 2 y
	Metopic Suture obliterated (generally)	0	2 – 4 y
Vertebrae	C1 – R & L Posterior arches (to one another)	_	4 – 5 y
	C1- Anterior arch to anterior bars	4-	5 – 6 y
	C2- Intradental union (becomes Dens)	-	Full term
	C2- R & L Neural Arches (to one another)		3 <b>-</b> 4 y
	C2- Dens to Neural Arch		3 – 4 y
	C2- Centrum to Neural Arch		4 – 6 y
	C2- Ossiculum Terminale of dens		12 y
	C3-L5 Neural Arches (to one another)	-	1 – 2 y
	C3-L5 Neural Arches to Centra		2 – 5 y
Sacrum	Lateral Elements to Neural Arches → 'Wings'		2 <b>-</b> 5 y
(S1 and S2)	Wings to Centra	_	2 – 6 y
Os coxa	Ischiopubic ramus	-	5 – 11 y
Humerus Greater and Lesser Tubercles to Head - 2 - 6			2 – 6 y

<sup>\*&#</sup>x27;f m' indicates 'fetal month'; 'f wks' indicates 'fetal weeks'; 'm' indicates post natal months; and 'y' indicates postnatal years.

#### Estimated Age

Step 1) Age Range.

Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with 'O' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.

\_\_\_\_\_

fetal weeks / postnatal months / postnatal years (circle unit)

9 fm - 2 y

fetal weeks / postnatal months / postnatal years (circle unit)

\* Remember to indicate the age range in the summary section on the top of page 1 of this form.

 $\square$  Indeterminate; i.e. no evidence to allow you to assign the individual to an age category. Procede to step 3.

Step 2) If you were able to provide an age range in step 1, skip this step and procede to step 3. If you selected 'indeterminate' in step 1 but your individual includes other evidence to allow you to assign the individual to an age category, indicate the information and the estimated age below. (e.g. petros portion compares favorably to individual 20 fetal weeks old). Then, use this information to select a categorical age in step 3.

#### Step 3) Age Category:

If you provided an age range in step 1, calculate the mean from of the ages and use the value to select an age category below.

Alternatively, if you arrived at step 3 following the directions in step 2, to proceed to assign your individual to an age category below based on the data you provided in step 2.

- Prenatal 2.5 years (Prenatal 2.49 years)
- Early Childhood (2.5 5 years)
- Late Childhood (6 12 years)
- Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

#### **Comments:**

No visible fusion of any markers Gave range of youngest open sutore

# <u>IUVENILE AGE ASSESSMENT PART II form:</u> NA

Ш	Prenatal –	2.5 years	(LMP –	2.5 years)
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☐ Early Childhood (2.5 – 5 years)

☐ Late Childhood (6 – 12 years)

☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.