AN ABSTRACT OF THE THESIS OF

Paul Christy Jenkins for the degree of Master of Arts in Interdisciplinary Studies in the Departments of Anthropology, with a double major, and History presented on June 11, 1981. Title: Anthropological Recovery, Analysis and Identification of Historic Burials in Two Southern Oregon Cemeteries.

Abstract approved: Signature redacted for privacy.
Dr. Roberta Hall

Federal legislation and U. S. Army Corps of Engineer regulations require that human burials be removed for reinterment if they are to be inundated as a result of dam construction. The final phase of the Applegate Lake Project was the archeological removal, analysis and identification of two historic Euro-American cemeteries, located within the pool area of Applegate Lake. This study is one of the first of its kind ever carried out in the Northwest.

The study focuses on the problems encountered in determining the location and number of graves, how these were overcome, and the methods employed to identify the recovered remains for reinterment. The use of anthropological methodology also provided a means whereby useful historical and behavioral data were collected that served to illuminate the early pioneer history and culture of the Upper Applegate River Valley.

Anthropological Recovery, Analysis and Identification of Historic Burials in Two Southern Oregon Cemeteries

by

Paul Christy Jenkins

A THESIS

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Master of Arts in Interdisciplinary Studies

Completed June 11, 1981

Commencement June 1982

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ACKNOWLEDGEMENTS

This particular study would not have been possible without the joint efforts and interests of a large number of people. In appreciation I wish to express my thanks to all the people who helped make this study a success.

In particular I would like to thank Dr. Roberta "Bobbi" Hall for her help, guidance and constant encouragement. I would also like to thank Dr. David Brauner for his support and encouragement, and my other committee members, Dr. Thomas McClintock and Dr. Carol Saslow, for their help and suggestions.

Thanks are also due to Debi Soper, who helped with the research in Nevada and the fine crew members, Judy Sanders, Mary Weber, Nahni Boling, Lou Ann Nichols, Alexy Simmons and Mike Gallagher.

Finally I want to thank Dr. John Fagan, Archeologist for the U.S. Army Corps of Engineers, Tony Walters, Robert Krahmer, Mary Tungate, Geraldine Dale, Clarence and Edgar Edwards, Frank Wainwright, Guy Watkins, Frank Collings, Grace Buck, and the Southern Oregon Historical Society.

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I. INTRODUCTION

While conducting archeological reconnaissance and site assessment in the pool area of the Applegate Lake project area in Southern Oregon (Figure 1), two Euro-American cemeteries, Watkins (35JA41) and Collings (35JA64), were encountered (Brauner, 1978). Because both of these cemeteries were in areas scheduled to be inundated (Figure 2) federal legislation and United States Army Corps of Engineers regulations required that they be recovered and reinterred. After obtaining approval, from the next of kin, to allow archeologists to accomplish this task, a contract was awarded to the Department of Anthropology, Oregon State University, by the Army Corps of Engineers.

The disinterment of these cemeteries was carried out during the summer of 1980 under the direction of Dr. David Brauner. He was assisted by Dr. Roberta Hall, who directed the laboratory analysis, and Paul Christy Jenkins, who acted as field supervisor and laboratory manager. A team of six field archeologists conducted the field excavations. Mr. Jack Goodell, funeral director at Hillcrest Memorial Park, served as a project advisor, insuring that the project was in compliance with all local county laws (Appendix A).

Before the excavations began the next of kin were notified, as per contract specifications, by letter of the disinterment schedule (Appendix B). In addition telephone calls were made to keep the relatives up-to-date of any schedule changes.

The Watkins Cemetery (35JA41) was located behind

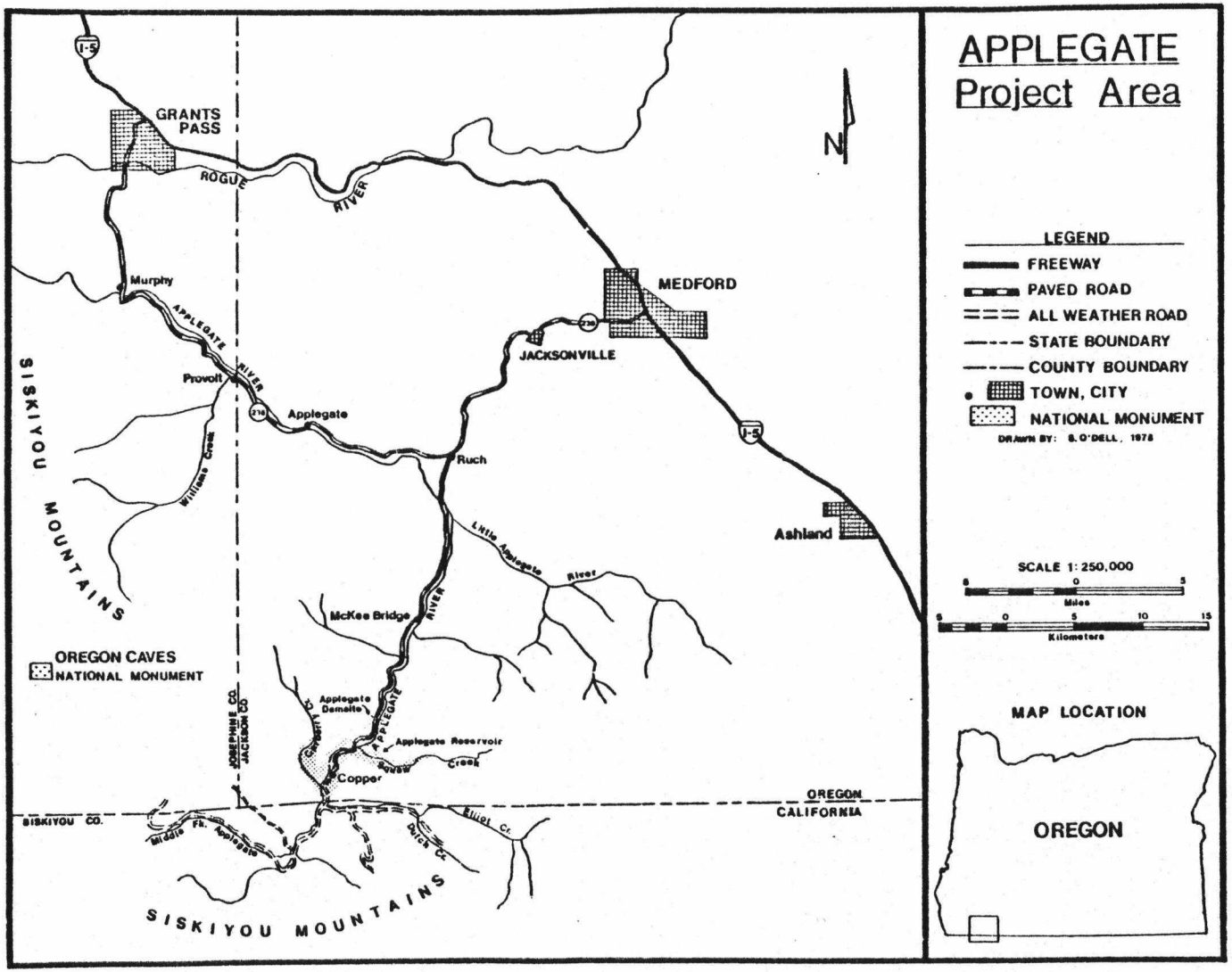


Figure 1. Applegate Lake project area (Brauner, 1978).

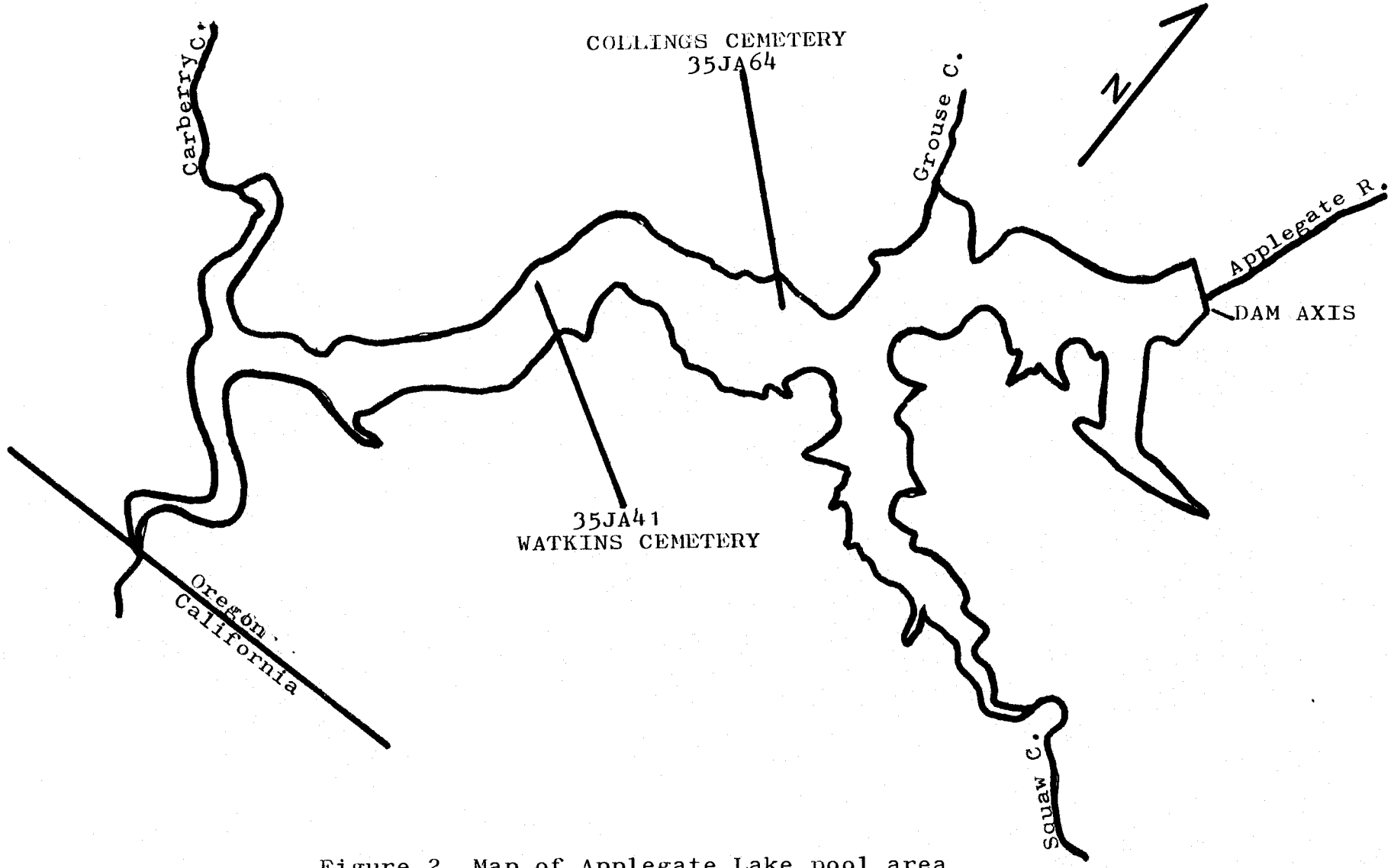


Figure 2. Map of Applegate Lake pool area showing sites of Collings Cemetery (35JA64) and Watkins Cemetery (35JA41) (Adapted from Brauner and Jenkins, 1980).

the Watkins' homestead, on the north side of the Grand Applegate Ditch, in the northeast quarter of section 2, township 41 south, range 4 west of the Willamette Meridian. The Collings Cemetery (35JA64) was located approximately one half mile east of the Watkins Cemetery, in tract no. 113c in the southeast quarter of section 35, township 40 south, range 4 west of the Willamette meridian.

Both cemeteries were small family burial plots located close to the family homes. The Watkins Cemetery was used for nuclear family members only, while the Collings Cemetery provided a "final" resting place for Collings family members, friends, and neighbors. Two burials were recovered from the Watkins Cemetery and eleven, or possibly twelve, burials were recovered from the Collings Cemetery (Figure 3).

The disinterment project shows how an interdisciplinary study utilizing historical scholarship, archeological methods and physical anthropological analysis can be used to locate burials and identify the individuals in those burials. It also reveals how these studies provide information that documents and updates the historical record and elucidates behavior patterns of the culture represented by the remains.

The use of anthropological analytical techniques constitutes an innovative approach in the removal and relocation of Euro-American cemeteries. This study represents the first complete analysis executed with a goal of elucidating the past and identifying the remains for reinterment. In the past, Euro-American grave removal has been accomplished by a funeral director, while the removal of Native American remains has been performed by professional archeologists.

However this traditional delineation of job responsibilities is changing. Other recent examples where

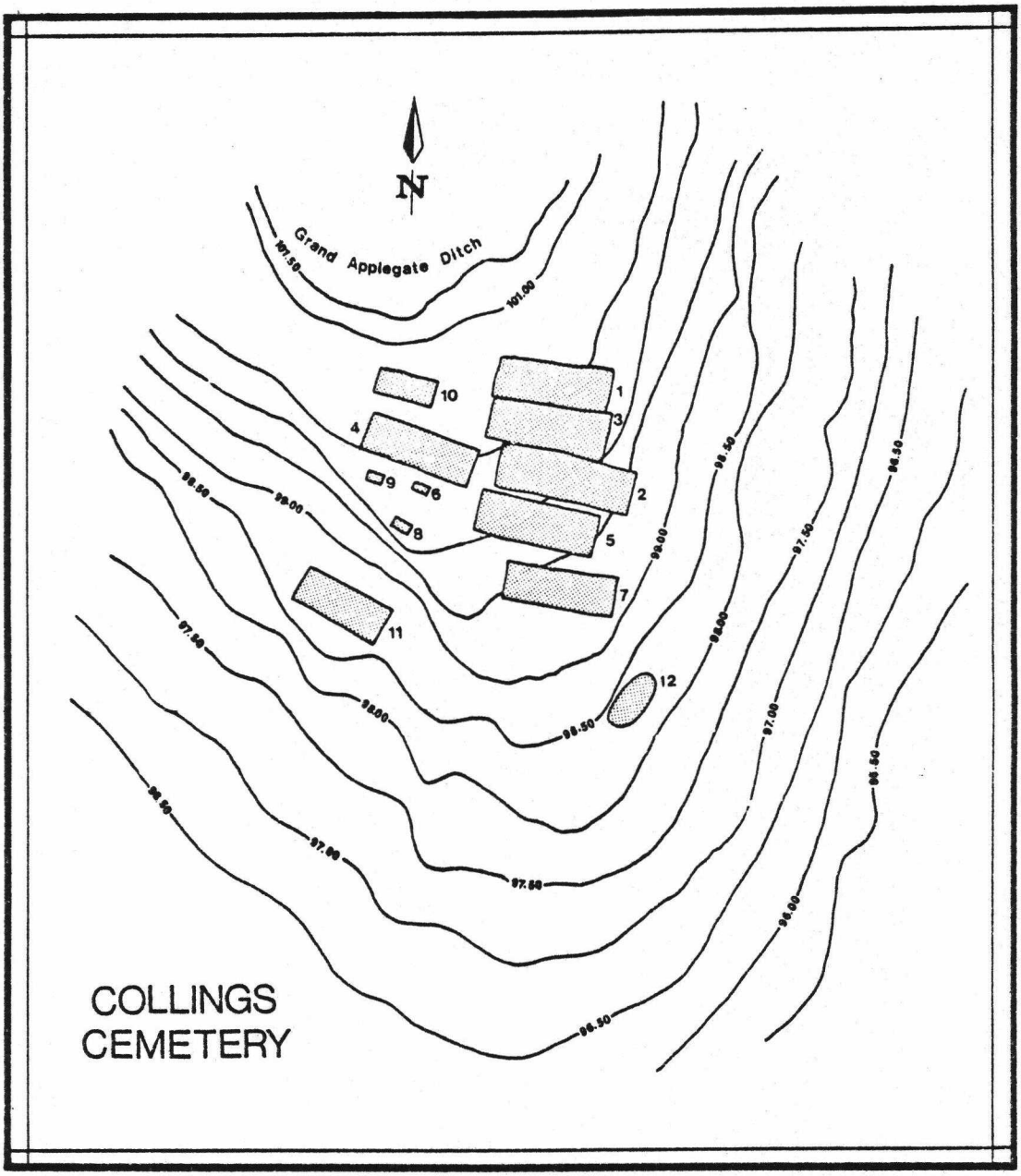


Figure 3. Placement of graves at the Collings Cemetery (Brauner and Jenkins, 1980).

professional anthropologists have been employed to remove Euro-American burials include the unpublished works of Roderick Sprague and Sheilagh Brooks. Dr. Sprague was responsible for the excavation of the Libby Cemetery site, which contained six Euro-American burials. Little time was available on this project for a detailed analysis of the remains or cultural materials. As a result, only a few basic osteometric observations, such as determination of sex and age, were made (Sprague, personal communication 1981).

Dr. Brooks has been involved in two such projects, in Nevada, both of limited duration. One project involved the excavation and immediate reinterment of a family burial plot that was being destroyed by construction activity. Only limited field observations and photographs were made in this particular case. The second project involved the removal of a murder-suicide case in which only two burials were present but analysis of the remains was performed (Brooks, personal communication 1980).

More recently Mid-Atlantic Research Inc. (1980) reported the excavation and analysis of the Catoctin Cemetery in Catoctin, Maryland. This site is reported to be a slave cemetery (Thomas, personal comminication 1981).

A number of advantages may be derived from the employment of anthropologists in the recovery of human burials. These advantages derive from the special training anthropologists, particularly archeologists and physical anthropologists, receive as part of their professional education. The anthropologist is trained in techniques to maximize the amount of data that is recovered during excavation while still preserving the integrity of the recovered materials. This includes training in locating burials and identification of the preserved remains.

Such training is an especially important consideration on this project for two reason. First the graves in the Collings Cemetery were not marked and thus the exact location and identity of the individual graves was in question. Secondly the location of the Watkins Cemetery had been lost due to logging and construction activities which had destroyed all surface indicators of the cemetery.

A second advantage and contributing factor in the use of anthropologists rather than funeral directors results from the realization that valuable information used in the reconstruction of history and human behavior can be derived from Euro-American burials. In the past, the attitude of some archeologists (Hume, 1968:158) towards the removal of Euro-American burials was one of disinterest. One possible exception was military cemeteries where the nature of wounds could be identified and identification of regiments by uniform buttons could be made, they were considered more trouble than they were worth.

More recently the value of archeologists, in the study of man's recent past, has become recognized. Schuyler (1978) provides 35 examples illustrating the development of historical archeology. He documents how the excavation and study of historic sites, including cemeteries, have been used to update historical interpretations of sites and have added valuable data to the study of man's past behavior patterns.

In general, the study of human skeletal remains and the cultural material associated with the burial provide the archeologist with one means of studing the relationship between biological and cultural adapations. Both environmental conditions and human behavior affect the biology of a population and, thus, the individual members of the population. Disease, diet, occupations, environmental hazards, accidents, and genetic conditions, for example, may be reflected in the skeletal remains

(Anderson, 1962:145-157; Brothwell, 1965; Collins, 1975: 163-184; Ubelaker, 1978:68-86).

Skeletal remains reflect cultural attitudes toward death and are helpful in the reconstruction of funerary practices. The presence and arrangement of objects placed in the grave and the position of the body all reflect social and cultural behaviors and ideas about the culture (Binford, 1962 and 1971).

II. ARCHEOLOGICAL METHODOLOGY

Watkins Cemetery

The location and number of graves at the Watkins cemetery was open to question at the beginning of the project. The only indication that a cemetery existed came from informants' testimony, obtained during the site assessment of the original Watkins homestead (Brauner, 1978:43-44). The existence of the cemetery was later confirmed by living relatives of the Watkins' family (Tungate, Dale, E. Edwards and C. Edwards, personal communication, 1980). These sources indicated that there were at least two graves located behind the Watkins' homestead and above the Grand Applegate Ditch. Guy Watkins (personal communication, 1980), the last owner of the Watkins property prior to the initiation of the Applegate Lake Project, indicated that as many as four burials were located at the site. He also indicated that one of the burials was that of Jimmy Watkins. Frank Collings(personal communication, 1980) remembers the grave's location as approximately 12 feet above the Grand Applegate Ditch; he too felt that Jimmy Watkins was buried in the Watkins Cemetery.

The reported location of the Watkins Cemetery had been logged and the ground surface disturbed by bulldozing activities resulting in the destruction of all indicators of the cemetery's location. Actual field operations at the site began when the living relatives, Mary Tungate, Geraldine Dale, Clarence Edwards and Edgar Edwards, were invited to the site in hope that they could pinpoint the location of the graves.

Utilizing a small bulldozer the surface soil and debris were removed from the site. Following the dozer crew members examined the cleared ground for changes in

soil color or artifactual materials indicative of a grave. One grave was defined by a distinct change in soil color. Upon locating this grave, ground clearing activities with the bulldozer ceased and a closer inspection of the site was carried out using shovels and trowels. Nails and wood fragments of a second burial were discovered lying parallel to the first grave. These graves were located almost to the foot of the point that Edgar Edwards indicated they would be. Prior to excavation the graves were photographed and measured. They were then excavated and examined for skeletal and cultural material.

Collings Cemetery

In contrast to the Watkins Cemetery the boundaries of the Collings Cemetery were clearly defined. Located below the Grand Applegate Ditch on a weathered granitic ridge, formed by two parallel erosional channels, the cemetery's boundaries were defined by several metal fence posts (Figure 4). Clearcutting activity had removed several large oaks that had previously grown over the site.

Although the boundaries of the site were well defined the location and identity of the graves within the site was not precisely known. Only one grave marker, placed on the site in 1977 or 1978, was present to mark the location of the graves (Figure 5).

Before excavation began, intrasite controls were established. Vertical control was insured by locating a datum above the site near the the Grand Applegate Ditch, while horizontal control was established by imposing a cartesian grid, divided into two by two meter squares, over the site.

Following the imposition of controls the sod was stripped from the site in an effort to locate the graves and determine their orientation (Figure 6). The location

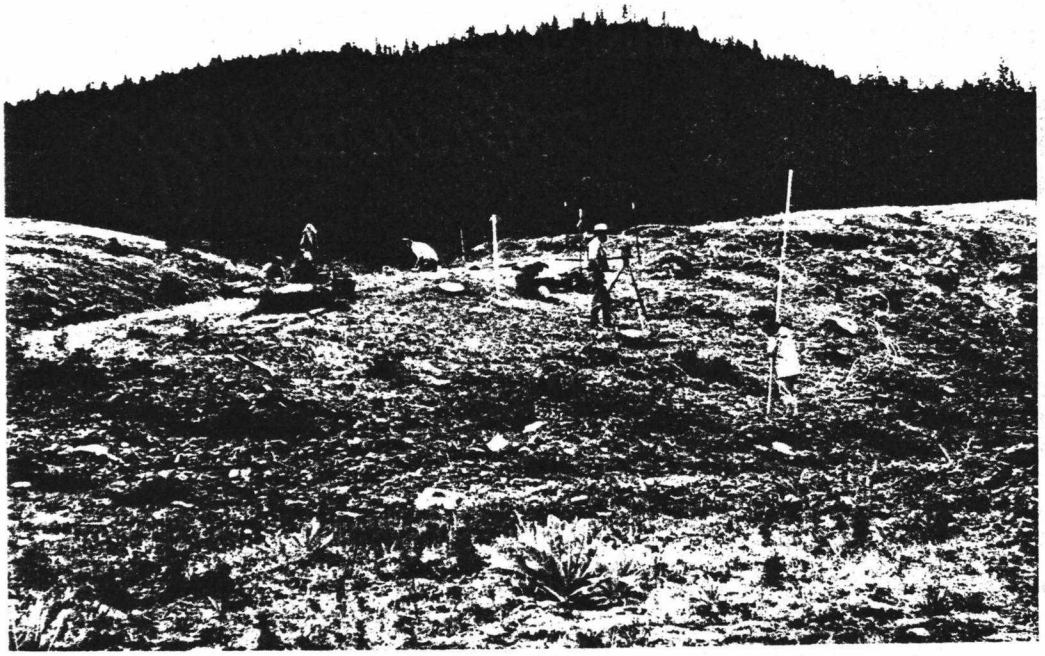


Figure 4. Collings Cemetery prior to excavation. View to the West.

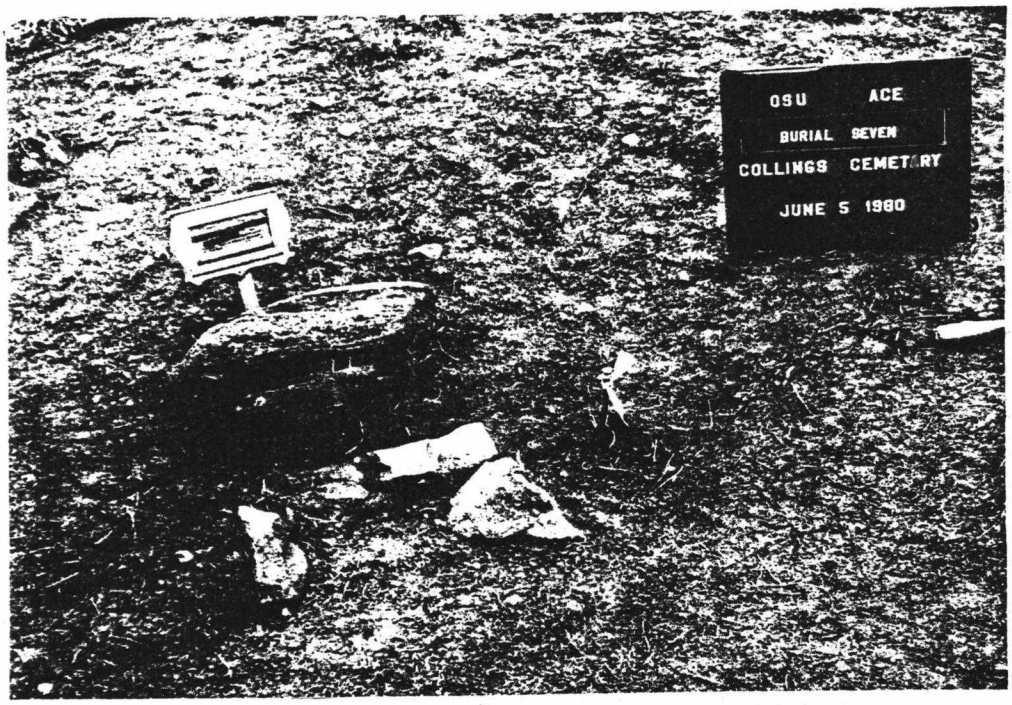


Figure 5. Gravemarker Collings Cemetery.

Figure 6. Removal of sod from Collings Cemetery.

of several graves became readily apparent on the upper portion of the site as a distinct change in soil color. The removal of between 20 and 30 centimeters of colluvial material was necessary on the lower portions of the site before the remaining graves could be defined. The changes in soil color that distinguished the graves coincided with the depressed areas already defined on the ground surface. The grave marker was found to have been placed close to the western margin of one of the graves.but whether it was placed on the correct grave is in doubt.

As the graves' locations were defined they were assigned numbers, drawn to scale and photographed. After the surface indicators had been documented the fill was removed as a single unit. When the grave liners or burial containers were encountered they were exposed, measured, drawn and photographed prior to removal. The skeletal remains were then exposed in situ, drawn and photographed. Following the removal of all skeletal and cultural material the basal elevations of each burial was recorded. Collings cemetery excavations were then terminated and the graves were backfilled.

III. LABORATORY METHODOLOGY

In the laboratory three seperate tasks were carried out: 1. Final excavation of materials that required more time and care than could be given in the field, 2. analysis of the skeletal remains and 3. analysis of the artifactual materials. Because the disinterment contract precluded removal of the remains from the project area, the analysis of the remains and artifactual materials were performed in the field.

Laboratory Excavation

Skeletal remains were removed from the site the same day they were exposed for security reasons. This insured that factors such as weather, animal activity and human vandalism did not destroy or damage the exposed remains. As a result some materials were removed to the laboratory for final excavation.

For example, in the case of burial seven the degree of root activity, i.e. the interlacing of the roots throughout the skeletal remains, required that a great deal of time be expended in the excavation process. As a result the whole torso section was removed to the laboratory for final excavation. Once in the laboratory the remains were carefully seperated from the fill and drawn and photographed following procedures normally used in the field. This strategy insured the integrity of the skeletal and cultural remains.

Skeletal Analysis

The analysis of the skeletal remains began with a careful cleaning and enumeration of the preserved elements. Following the enumeration each element was measured

and examined for pathologies and unusual characters. The cranial remains were then analyzed for anomalous or non-metric traits following Berry and Berry (1967: 361-379) and dental attrition was was recorded when possible using Hall and German (1975:289) as a guide. This information was recorded on Oregon State University skeletal data forms (Appendix C).

Upon completion of the initial enumeration and recording of the metric and non-metric data, estimations of age, sex and stature were made. Texts used as guides in this phase of the analysis were: Hall, Beals and Neumann (1978), Olivier (1969), Lockhart, Hamilton and Fyfe, (1965), Brothwell (1965) and Gray's Anatomy, 22nd edition (Lewis, 1930) (Table 1).

Sex estimations were based on a number of criteria: the breadth or degree of the subpubic angle, the presenee or absence of a preauricular groove or preauricular pitting, the breadth of the sciatic notch and the overall robustness and stature of the individual. Substantiating evidence was recovered in the form of traditional male clothing from burials four, five, seven and eleven, and facial hair from burial eleven.

Historic documentation of the Collings cemetery indicated that all but two of the burials were male. One of these was reported to be an infant daugther of Freeman Oscar Collings and the other, Bessie Langley, the wife of Edward Langley (D.A.R., 1944 and Tungate, 1980).

Primary emphasis was therefore placed initially on determining which individual exhibited the highest degree of female traits. All osteological indicators pointed to burial one as female; this determination was supported by the non-osteological indicators previously mentioned. Sex estimations of the infant remains were not possible.

TABLE 1. SUMMARY OF BURIALS BASED ON OSTEOMETRIC DATA

Burial Number	Age	Sex	Stature
Collings Cemetery			
1	50+	F	4'9 3/4"-4'10 1/2"
2	60+	M	5'8"-5'9"
3	---	---	---
4	45-65	M	5'6"-5'6"
5	55+	M	5'7"
6	Fetus 7th month	---	---
7	60+	M	5'6 1/2"-5'7 1/2
8	Fetus 7th month	M	---
9	---	---	---
10	---	---	---
11	60+	M	5'5"
12	---	---	---
Watkins Cemetery			
1	---	---	---
2	---	---	---

* No Skeletal Remains

(Brauner and Jenkins, 1980).

Age estimations were based on more than one criteria. Estimations of the adult members of the sample were based on the degree of cranial suture closure, the loss and condition of the teeth, and the degree of bone resorption on the mandible and maxillia. When possible the pubic symphysis was examined and degenerative features such as arthritic lipping were noted. The remains were also examined relative to each other. In this regard burials one and four were noted to be much younger looking than the other burials. Due to the advanced age of the adult members an examination of epiphysial unions was of little help. In addition the lack of facilities, prevented a microscopic examination of the skeletal remains.

In the case of burial six the development of specific features, e.g. petrous and sphenoid, were utilized to make the age estimation. It was noted that the petrous, which forms by the sixth month of intrauterine life, was present and the sphenoid which fuses in the eighth month was not yet fused. Therefore an approximate age of seven months of intrauterine development was suggested.

Burial eight was compared with burial six on the basis of overall size to make the age estimations. The small quantity of skeletal remains prevented an analysis in terms of skeletal development.

When age estimations were compared with the county cemetery records (D.A.R., 1944) and genealogical information (Appendix E) a fairly close correlation between the known ages and estimated ages was noted.

Initial stature estimations were based on inground measurements of the remains. However due to postmortem movement and deterioration of the remains these measurements could only be used as rough guides. In some cases these measurements were in obvious error. More accurate estimations were computed from long bone physiological length measurements following Brothwell (1965:100-102) and

Ubelaker (1978:44-45). When no complete long bones were available stature estimations were made utilizing the data at hand.

No complete long bones were recovered from burials seven and eleven. In the case of burial seven stature estimations were made using a composite femur length derived from both the left and right femora. The two femora were matched at the lesser tubercle and an overall physiological length was then determined. This procedure was made possible because the distal portion of the left femur and proximal portion of the right femur were intact. A comparison of the left and right femora from the other burials indicated that this method was reasonably accurate, providing a femur length not greatly different than what would have been obtained had the femora been complete.

The stature estimations of burial eleven, based solely on a comparison with the other burials, indicated that this individual was notably smaller than the other males but distinctly larger than the one female burial.

Artifact Analysis

The enumeration and analysis of the artifactual materials resulted in the definition of 12 classes of artifacts: buttons, nails, screws, coffin/casket handles, coffin/casket ornaments, coffin/casket hardware, fabric, glass, wood, miscellaneous metal objects, bone and seeds. For detailed descriptons see Appendix D.

Artifacts from three of these classes, coffin/casket handles, coffin/casket ornaments and seeds, proved useful by providing lower limiting dates for burials four, five, seven and eleven. Coffin ornaments (type two, Appendix D) from burial five were manufactured by the Western Casket Company of Elgin, Illinois (Figure 5). This particular company was founded in 1903 (Ellis, personal communication

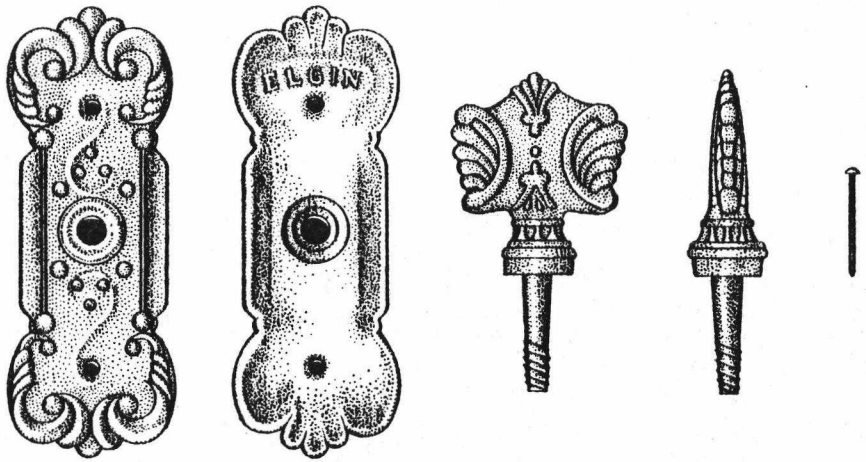


Figure 7. Casket ornament, type two, Appendix D. Recovered from burial five.

1980), thus this burial was interred after 1903. The upper component of the ornaments (type three, Appendix D) recovered from burial seven were identical to the upper components of the ornaments (type two, Appendix D) recovered from burial five. This suggests that they too were manufactured by the Western Casket Company and interred after 1903.

The casket handles (type two, Appendix D) from burial eleven also provided a lower limiting date. Cast on the underside of the handles was the patented date, September 3,1899.

Two other firm dates were obtained from silver half dollars recovered from burial ten. These coins were minted in 1867 and 1871. Due to the early dates, compared with the known dates of interment, these were of little value in determining the identity of the burials. However the presence of the coins in the burial is important as a reflection of human behavior, as will be later noted.

A number of seeds were recovered from the sacral region of burial four. These were identified by Anthony B. Walters (personal communication, 1980 and Appendix E) as Himalaya Blackberry, Rubus discolor. This particular species is an exotic plant imported to the area. Although the exact date of its introduction is not known it is improbable that this species was introduced before 1893 (Bailey, 1923:194-197 and 1945:836-856; Bunyard, 1918:205 and 1919:27; Hendrick, 1925:84, 191-192,216; Rolfe, 1919: 27; Walters, 1980). The seeds therefore are a useful dating tool.

Cloth fragments were also useful in a number of regards. First the identification of bow ties and suit fragments in burial four, five, seven and eleven were helpful in confirming the sex determinations. Secondly the presence of cloth on the back of the casket handles

from burial eleven suggests that this casket was cloth covered. Confirmation that cloth covered caskets were common around the turn of the century was obtained from Jeff Ellis (1980), of the Elgin Casket Company, known formerly as the Western Casket Company and Habenstein and Lamers (1977:95).

VI. METHODOLOGICAL BIAS

There were a number of biases inherent in this project and in the laboratory methodology. The formulas used in the stature estimations were derived from recent populations; consquently two areas of uncertainty are present that can introduce errors in the estimations. The first source of possible error results from the variability within the documented population from which the stature formulas were derived. A second inherent bias results from differences between the documented population and the population that is being analyzed.

The error factor is likely to be reduced if the two populations are closely related. In the case of the Euro-American males from the Collings cemetery, the formulas used were derived from European populations. Edward Langley immigrated from England in 1852 (Census, 1900) and the Terry brothers were also reported to have immigrated from England (Collings, 1980). Therefore the estimations are likely to be fairly accurate for the Terry brothers and Edward Langley. The original ancestry of Freeman Oscar Collings, Charles Williams and Thomas Jefferson Fawcett is not known. However the fact that they are Euro-Americans makes the use of standard stature estimations a reasonable procedure.

The stature estimation of burial one, the only adult female, had the potential for the greatest error. Bessie Langley was reported to be a Native American born either in Southern Oregon or Northern California (Tungate, 1980; Collings,1980; census 1880) and no documented stature formulas were available for Native American populations of this area. Consquently other formulas were used. These were derived from Euro-American female, Asiatic female and Meso-American female samples (Brothwell, 1965:

102 and Ubelaker 1978:44-45). Although these do not provide precise stature figures for female Native Americans, they do provide a range of figures that fall within two inches of each other.

Finally the remains are compared with all other burials to determine the relative differences. The long bones of burial one were noticably shorter than those of any of the other burials including burial eleven, from which the shortest male stature estimation was derived. This comparison suggests that the stature estimation of burial one is not too far from reality.

The estimations of age based on skeletal materials are also subject to error. For skeletal remains of persons over the age of approximately 45 years it is difficult to make precise age estimations. However, the factors examined do provide a means of distinguishing the younger appearing burials from the older burials. Adult burials one and four were noticably younger looking in appearance. In the case of burial one the reported age at the time of death, located after the age estimations were made, was in the fifties, thus matching well with the estimated age (D.A.R., 1944 and census 1880).

The absence of previous research pertaining to historic burial in the United States and the lack of literature documenting late nineteenth and early twentieth century coffin/casket accessories further hampered analysis and burial identification. The destruction of vital documents such as sales records, birth and death certificates and the 1890 census data added to the inadequacy of the historical documentation.

The deteriorated condition of the skeletal remains and some artifactual materials presented problems in the analysis. In the case of burials three and ten the total lack of skeletal remains and in the case of burial eleven the marked deterioration of the remains made conclusions

about these burials tenuous at best. Finally the deteriorated condition of the wood fibers precluded identification beyond the genus level.

The identification and analysis of the artifacts, most notably the coffin accessories and cloth fibers, was hampered by the fact that all analysis had to be carried out in the field. This meant that analysis by qualified and professional personnel, with expertise in these areas, was limited if not impossible.

V. WATKINS CEMETERY

Discussion

The Watkins Cemetery was located on a hillside behind the site of the original Watkins' homestead, about four meters above the Grand Applegate Ditch. The reported location of the cemetery had been significantly altered due to logging activity. The historical records contained little information about the site and no county or other cemetery records exist for the cemetery. The only known sources of data are living relatives and residents of the area.

Living relatives who were able to provide information about the site were Mary Tungate and her sister Geraldine Dale, their cousins Clarence and Edgar Edwards and the most recent owner of the site, Guy Watkins (Appendix F). Mary Tungate and Geraldine Dale lived at the Watkins' homestead as children, in the 1920's and 1930's (Tungate and Dale, personnal communication 1980). The Edwards brothers lived at the site following the death of their mother in 1914 and were raised by their grandmother, Martha Watkins.

As a child, Mary Tungate remembers tending the graves with her grandmother, Martha Watkins. She indicated that only two graves were located behind the Watkins' homestead. Other family members, Dale, C. Edwards and E. Edwards, agreed with this statement. One family member (Watkins, personal communication 1980) stated that as many as four graves were located at the site. However, he could not elaborate on the location or identify either of the other two graves.

The living relatives agreed that the individuals buried at the site were children of Mark Anthony Watkins and Martha Watkins, the daughter of Edward Langley. There

was some question, however, as to the age and identity of these children. Mary Tungate (1980) believes that the graves were still births while Geraldine Dale (1980) thought they were twin stillbirths. The Edwards brothers were not sure of the ages and readily admitted that they did not know. Both Guy Watkins (1980) and Frank Collings (1980) indicated that one of the burials was that of Jimmy Watkins. The other family members acknowledged the existence of Jimmy Watkins but they were not sure where he was buried. The only written documentation of Jimmy Watkins is found in The Centennial History of Oregon (Gaston, 1912). This volume lists him as dying in 1886 and identifies him as a son of Martha Watkins.

An examination of the genealogical information (Appendix F) compiled on the Watkins family, in terms of birth spacing, suggests that the individuals buried in the Watkins cemetery were probably born between 1889-1895. During this period no births are reported to have occurred. Since the known births occurred on a fairly regular basis, every two to four years, placing these burials in that time period conforms to this pattern.

Burial Desriptions

Burial One

Burial one was located on a flat terrace approximately four meters above the Grand Applegate Ditch. The long axia of the grave ran in an east-west direction and the fill area measured 90 centimeters by 30 centimeters (figure 8). Only between 10 and 15 centimeters of grave fill remained, as the upper component of the grave had been destroyed by logging activity. No skeletal or cultural materials were recovered from the grave.

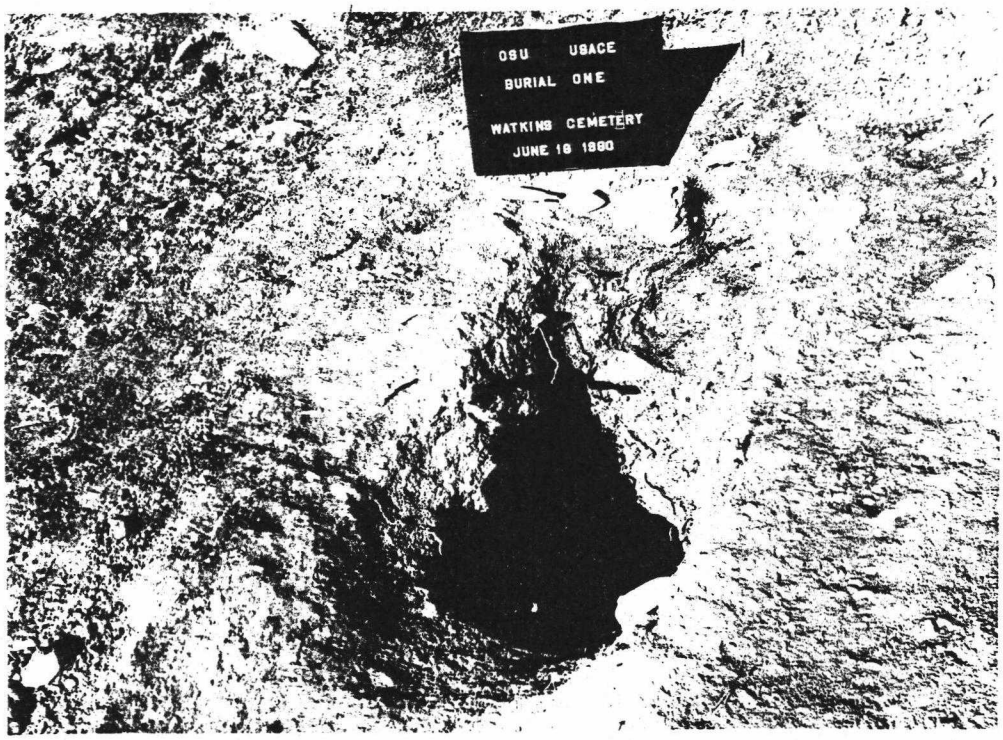


Figure 8. Burial one Watkins Cemetery.

Figure 9. Burial two Watkins Cemetery.

Burial Two

Burial two was situated one meter to the west of burial one. As with burial one the upper component had been destroyed, however the integrity of the burial had not been compromised (Figure 9). A grave approximately 30 centimeters by 60 centimeters was defined. Located in the center of the unit were the remains of a casket and nails used in its construction. The casket measured 10 centimeters by 20 centimeters by 32 centimeters and had been constructed primarily with wire drawn nails. One machine-cut square nail was also recovered (Table 2).

No skeletal remains were recovered; however the size and similarity of the casket to those of the Collings cemetery indicated that this grave was also that of an infant or premature fetus.

TABLE 2. ARTIFACTS, BURIAL TWO, WATKINS CEMETERY

Artifact	Number of Items
Wire Drawn Nails	
Type 2	24
Type 4	8
Type 7	3
Machine-cut Square Nails	
Type 2	1
Wood	
Type 2	Casket

VI. COLLINGS CEMETERY

Discussion

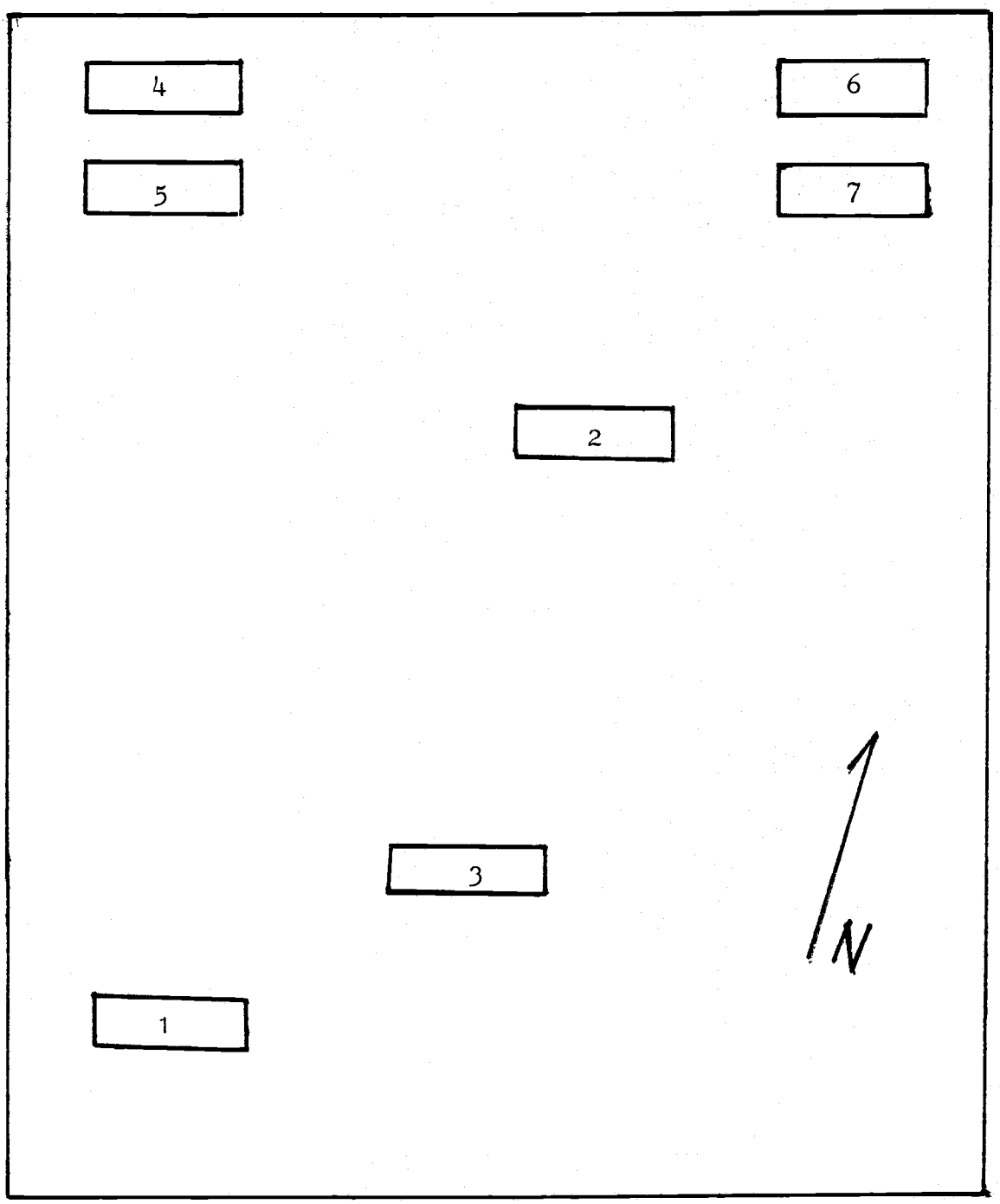
The Collings cemetery, located near the Collings' house, served the Collings family as well as friends of the family who resided in the area. County cemetery records listed the names of seven adults, Freeman Oscar Collings, Thomas Jefferson Fawcett, Edward Langley, James Terry, Stephen Terry, Charles Williams and Betsy Langley, and two infants, a son and a daughter of Freeman Oscar Collings, buried in the cemetery. This record included the date of death and the age at death for six of the adults (Table 3) but did not include a map showing the location of the individual graves (D.A.R., 1944).

The Army Corps of Engineers provided a list of graves (Figure 10, D.A.R., 1944). Seven of the names, mentioned above, also appeared in the county cemetery records. The remaining name was listed only as "James." The Corps of Engineers information did not note the age or relationship of James to any of the other individuals.

None of the informants contacted were aware of a James, as listed in the disinterment contract, and no one on the Corps of Engineers staff knew how the name was determined or why it was included in the contract.

Both Frank Collings (1980) and Guy Watkins (1980) indicated that Jimmy Watkins was buried behind the Watkins' homestead but it is unclear if this is the same James listed in the disinterment contract. The identity of James is discussed in detail in the burial identification section.

Upon excavation of the cemetery, the map provided by Corps of Engineers proved to be totally inaccurate, bearing no resemblance to the actual layout of the graves (Figure 3).



1. Freeman Oscar Collings
2. Charles Williams
3. James (No last name)
4. Edward Langley
5. Bessie Langley
6. Steve Terry
7. James Terry
8. T. J. Fawcett (location unkown)

Figure 10. Map of Collings Cemetery provided by Army Corp of Engineers (Disinterment Contract).

TABLE 3. SUMMARY OF BURIALS BASED ON HISTORICAL RECORDS

Burial Number	Age	Sex	Year of Death
Collings Cemetery			
1	late 50's	F	1888
2	75	M	1905
3[2]	approx. 80	M	1893
4	---	M	1900
5	quite elderly	M	1911
6	infant	---	----
7	70+	M	1914
8	infant	---	----
9	---[1]	---	----
10	8-9	M	1886[5]
11	81 yrs. 7 mos. 6 days[3]	M	1913
12	---	---	----
Watkins Cemetery			
1[4]	infant	---	1889--1895
2[4]	infant	---	1889--1895

All information from Jackson County Cemetery records, except where noted.

1. George Frank Collings and Guy Watkins (1980)
2. Frank R. Wainwright (personal communication, 1980)
3. Mary Tungate (1980)
4. Clarence Edwards and Edgar Edwards, Mary Tungate, George Frank Collings and Guy Watkins, (1980)
5. Gaston (1912:365)

Adapted from Brauner and Jenkins, 1980:77

Although the county cemetery records (D.A.R., 1944) and the disinterment contract indicated that eight or nine individuals were buried at the site, next of kin (Guy Watkins and Frank Collings) contacted prior to excavation affirmed that the cemetery contained additional graves. This testimony was borne out upon completion of the excavations when eleven burials, three infants, one juvenile and seven adults, had been recovered. In addition an irregular pit, located down slope and southeast of the other burials, was also excavated (Figure 3).

The graves were positioned in two roughly parallel rows running north-south. With the exception of burial eleven, which was positioned slightly more to the south, all the graves were oriented roughly along an east-west axis (Figure 3). All the bodies had been buried fully extended on their backs and had been positioned with their heads to the west. The hands had been placed one over the other below the rib cage.

In a number of graves, what have been identified as grave liners were noted. In most cases these were not liners in the sense that they completely surrounded the burial container but rather a network of wood boards laid over and capping the burial container. For the sake of clarity these are identified as cap boards to distinguish them from the complete graveliner that was recovered from burial five.

Burial Descriptions

Burial One

The surface on burial one was characterized by a slight oval depression, five subangular basalt cobbles and one large cobble located centrally over the grave fill. The remnants of a wooden stake were observed

after the sod was removed in association with the five large cobbles. The grave fill, a mottled (10YR6/2 light brownish gray to 10YR6/6 brownish yellow) soil of weathered granite and small gravel, was easily distinguished from the surrounding matrix of weathered granite, capped by a strata of small to medium angular and subangular gravels. The fill, rectangular in plane view, measured 190 centimeters by 80 to 85 centimeters.

Although badly decayed, a wooden cap board was encountered 175 centimeters below the surface. The lateral edges were still in a horizontal plane, extending beyond the casket, perpendicular to the long axis of the grave. The lateral margins were supported by the grave fill. The center of the cap boards and the top of the casket had both collapsed into the casket (Figure 11).

The casket, a rectangular box, measured approximately 175 centimeters long, 65 centimeters wide and 50 centimeters deep. The top, sides, and floor boards all lay parallel to the long axis, while the end boards were perpendicular to the long axis. The casket was held together with machine-cut square nails, while round wire drawn nails were used to secure the lid in place. No casket handles or ornaments were recovered from the burial (Table 4).

The lid of the casket was found draped over the skeletal remains and roots were encountered interwoven throughout the casket. Portions of the torso were covered with the remains of the burial clothing.

The skeletal remains (Figure 12 and 13) were badly decayed and exhibited post-mortem deformation, particularly in the cranium. The facial region was completely missing and the alveolus of the mandible exhibited a good deal of resorption. However, root cavities were still discernible in the right canine and right lateral incisor positions of the mandible.

Post-cranially a number of bones were recovered but

TABLE 4. ARTIFACTS, BURIAL ONE, COLLINGS CEMETERY

Artifacts	Number of Items
Wire Drawn Nails	
Type 9	13
Machine-cut Square Nails	
Type 7	5
Buttons	
Type 1	3
Type 2	5
Type 3	1
Type 4	1
Miscellaneous Metal Objects	
Type 6	1
Wood	
Type 1	Casket/Cap boards
Fabric	
Type 8	1
Type 11	1

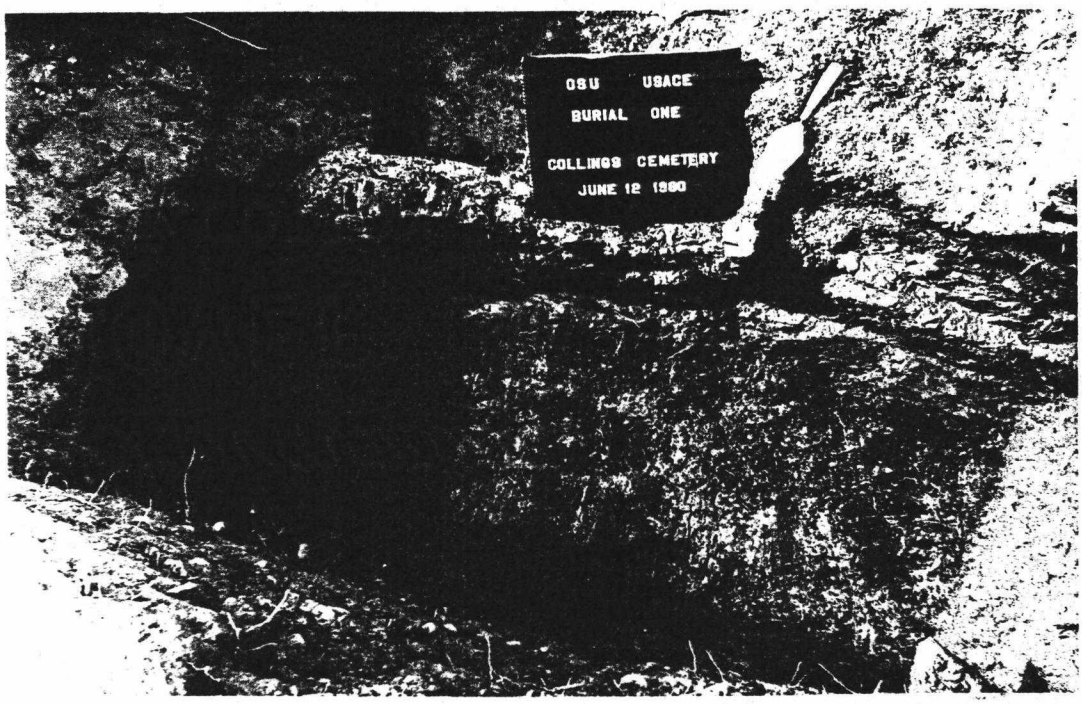


Figure 11. Cap boards, burial one, Collings Cemetery.

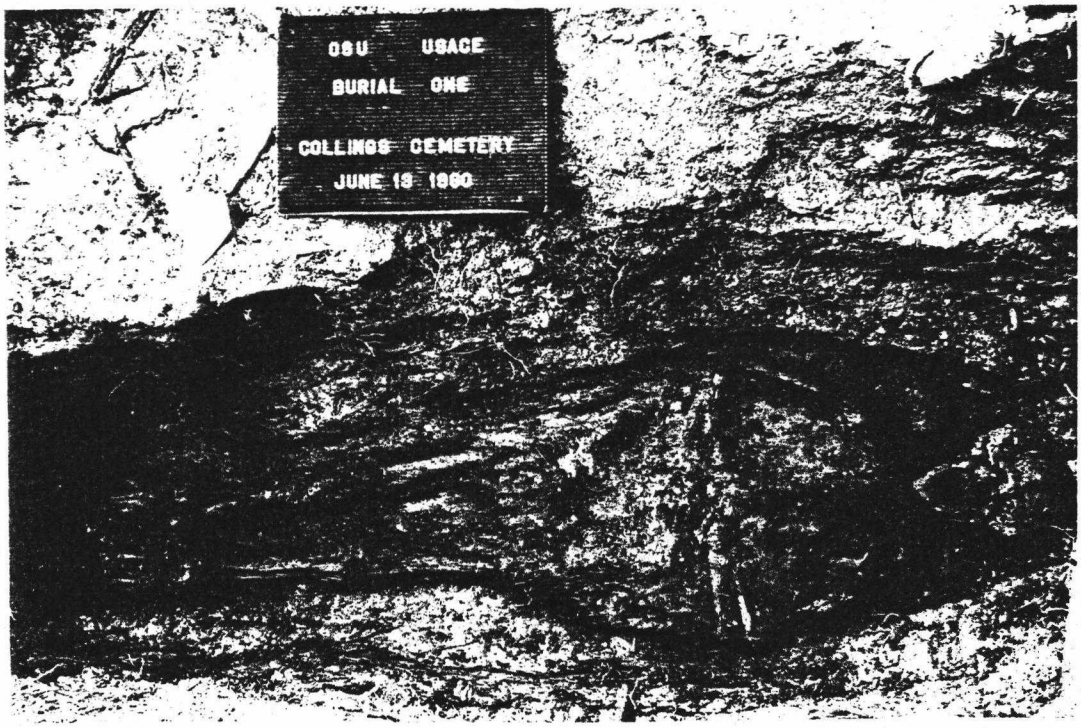


Figure 12. Skeletal remains, burial one, Collings Cemetery.

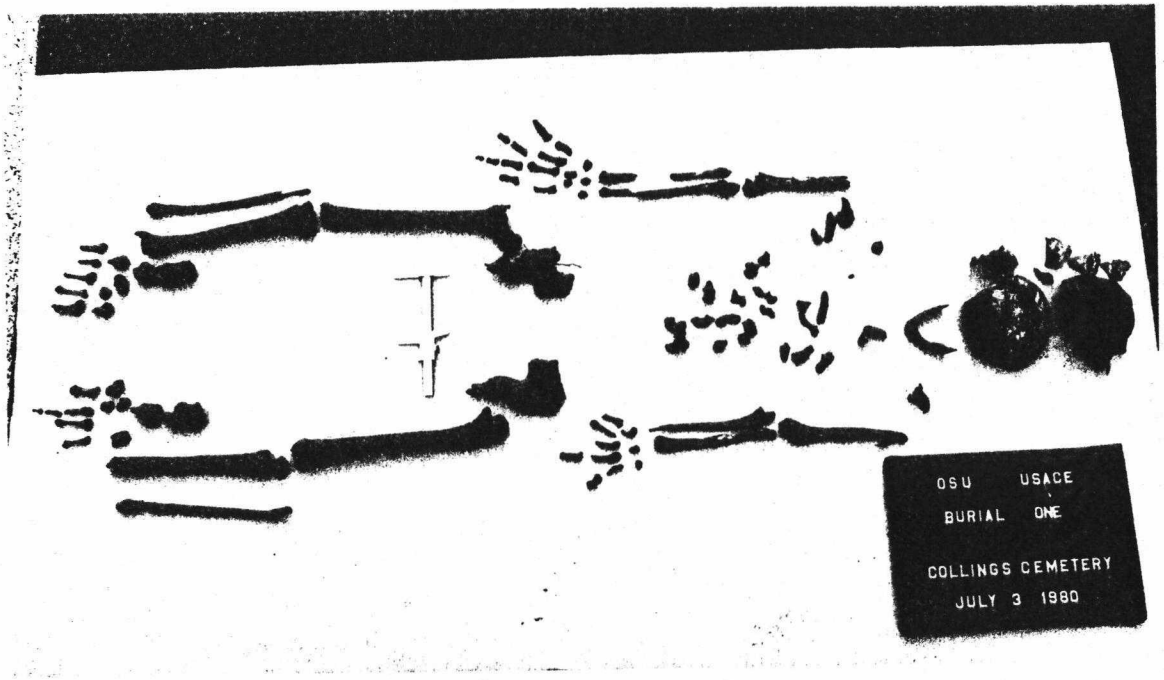


Figure 13. Skeletal remains, burial one, Collings Cemetery.

these were all in a very deteriorated condition. Due to the fragmentary nature of the remains, it was not possible to take any long bone measurements except from the femora, tibae, and radii. Stature estimations were possible using the left tibia and right radius only. The right tibia was of interest because the nutrient foramen was located just below the midpoint, on the lateral side, anterior to the interosseous crest, rather than in its normal location.

Overall, the remains were gracile in comparison to the rest of the sample, although they did exhibit some cranial robustness in the nuchal area of the occiput.

The wide breadth of the sciatic notch and the short stature, 4' 9 3/4" to 4' 10 1/2", indicated that this individual was female. Age indicators suggested that she was over 50 years of age at the time of death. This individual, with the exception of burial four, was younger in appearance that the other burials.

Burial Two

Burial two was located approximately one meter down slope from burial one (Figure 3). The surface was characterized by shallow depression and a slight soil color difference from the surrounding soil. Several large subangular cobbles had been piled near the western edge of the grave. The grave measured approximately 225 centimeters long and 90 centimeters wide. The grave fill and surrounding soil matrix were similiar to those described in burial one.

The remains of the cap boards were encountered two meters below the ground surface, making this the deepest burial in the cemetery. As with burial one these extended in a horizontal plane, perpendicular to the long axis, beyond the margins of the coffin and had collapsed into the central portion of the coffin.

The coffin was constructed with 4"x1" milled lumber and machine-cut square nails (Table 5). The floor boards and sides of the coffin were parallel to the long axis while the lid and ends were perpendicular to the long axis (Figure 14). It measured six feet in length and was nine inches wide at the foot, expanding to eighteen inches at the shoulder and then narrowed to twelve inches at the head. Root activity was also prevalent throughout the coffin and small fragments of cloth were found lying in the torso area.

Post-cranially the skeletal remains were in excellent condition and, with the exception of the skull, this was the best preserved burial recovered (Figures 15 and 16). The facial area of the skull had been crushed and fragmented by the deterioration and collapsing of the lid of the coffin. The mandible exhibited alveolar resorption in the molar region but root cavities were noted in the premolar, canine and incisor postions. A total of eight unarticulated teeth were also recovered, consisting of three incisors, two canines, two premolars and one molar. Although the teeth were found unarticulated with the alveolus, the narrowness of the incisors suggested that they were mandibular while the molar appeared to be from the second left maxillary position. One other feature of interest was the presence of a bony growth where the left maxillary canine should have been (Figure 17).

The good preservation made it possible to obtain a significant amount of osteometric data (Appendix C); coupled with empirical observations this data suggested a very robust individual. The robustness and sex indicators suggest that this individual was male. Stature estimations made from the right and left tibae and the right radius indicated that this individual was approximately 5' 9" in height.

TABLE 5. ARTIFACTS, BURIAL TWO, COLLINGS CEMETERY

Artifacts	Number of Items
Wire drawn Nails	
Type 3	2
Machine-cut Square Nails	
Type 3	22
Type 6	4
Type 10	9
Screws	
Type 7	4
Buttons	
Type 1	4
Type 4	2
Type 5	2
Type 6	1
Type 7	1
Type 8	1
Wood	
Type 1	Coffin/Cap boards
Fabric	
Type 9	1

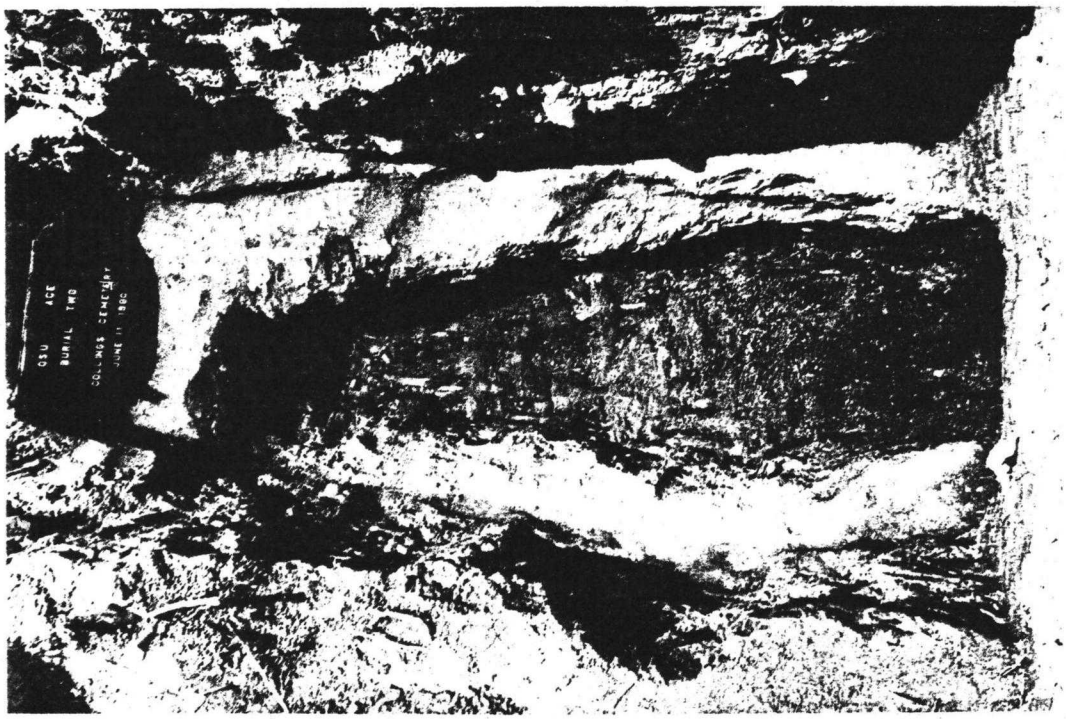


Figure 14. Coffin, burial two, Collings Cemetery.

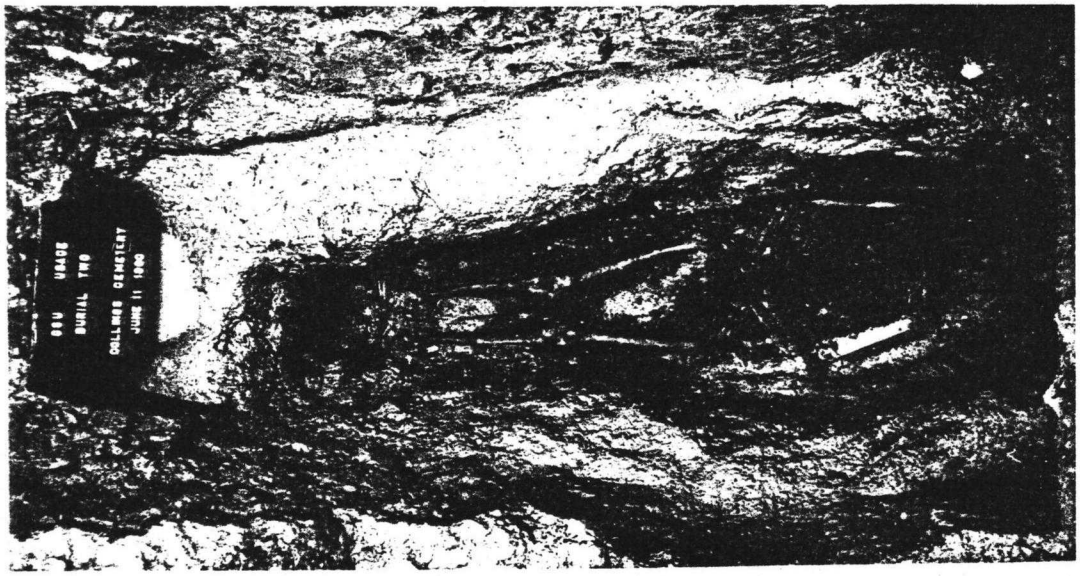


Figure 15. Skeletal remains, burial two, Collings Cemetery.

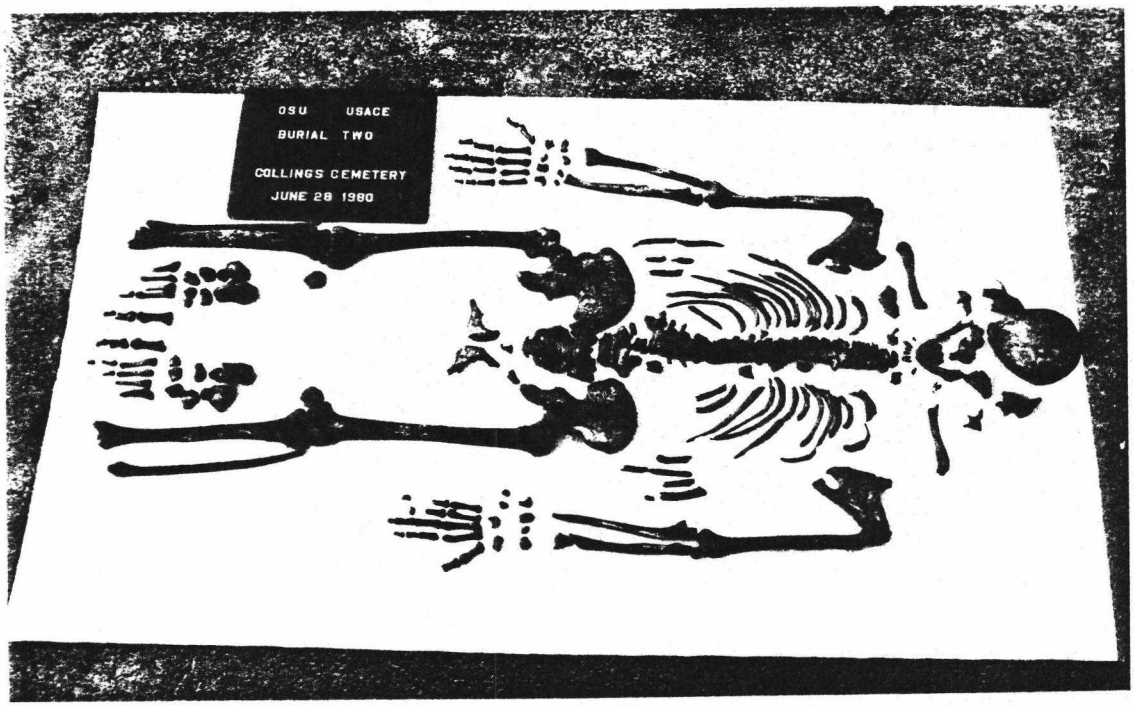


Figure 16. Skeletal remains, burial two, Collings Cemetery.

Figure 17. Bone growth, left maxilla, burial two, Collings Cemetery.

Burial Three

Located between burials one and two, a rectangular pit approximately 215 centimeters by 95 centimeters was defined below the sod zone. The fill was a mottled gray (10YR5/4) clay. The fill differed from the fill in burials one and two and from the surrounding soil matrix. The bottom of the unit was encountered at a depth of 140 centimeters below the ground surface.(Figure 18). At the bottom of the unit a dark organic stain, three to four centimeters thick, was encountered. Although no wood, bone or cultural materials were recovered, it was assumed that this unit was a burial and the organic staining represented the only remaining traces of the original contents. The stained fill was collected, as per the disinterment contract, for reburial.

Burial Four

Located on a southwest-tending slope, in a large depressed area, burial four was positioned directly to the west of burial two (Figure 13). The only surface indicator of the burial's location was a pile of sub-angular cobbles placed along the western margin of the grave. It was necessary to remove between 20 and 30 centimeters of granitic sand, small gravels and clay slope wash before being able to define the burial's parameters.

It was noted, upon removal of this overburden, that the grave fill was similar to that of burials one and two. The fill measured approximately 210 centimeters in length by 120 centimeters in width. At approximately 110 centimeters below the overburden or 140 to 150 centimeters below the ground surface, casket cap boards were encountered. Just as with burials one and two the

Figure 18. Burial three, located between burials one and two.

lateral edges extended horizontally beyond the edges of the casket and the central portion of the cap boards and casket lid had collapsed over the skeleton (Figure 19).

The casket was rectangular in shape and measured approximately 180 centimeters in length and 95 centimeters in width. The size of the lumber was not determined but cross members, used to support and strengthen the cap boards and casket lid, were noted running perpendicular to the long axis of the casket. The casket measured approximately 40 centimeters in depth and was constructed with machine-cut square nails. The boards on the bottom of the casket were placed parallel to the long axis and were supported by boards placed perpendicular to the long axis. These support members were secured to the underside of the casket. No ornaments or casket handle were recovered from this burial.

Root activity had completely penetrated the casket and the skeletal remains but, unlike some of the other burials, preservation of the skeletal remains and cloth was excellent. The entire torso was covered by the remnants of a black woolen coat. No cloth preserved under the coat or below the waist. In addition three buttons were also recovered (Table 5).

Another interesting feature was the recovery of seeds from the sacral region of the individual. These were identified as Himalaya Blackberry (Rubus discolor), an exotic species to North America (Appendix F). These proved helpful in the identification of the burials and are discussed at greater length in the burial identification section.

The preservation of the skeletal remains, particularly the skull, was excellent. Post-cranial preservation was good compared to the other burials, although fragmentary in some respects and not quite as good as burial two (Figures 20 and 21).

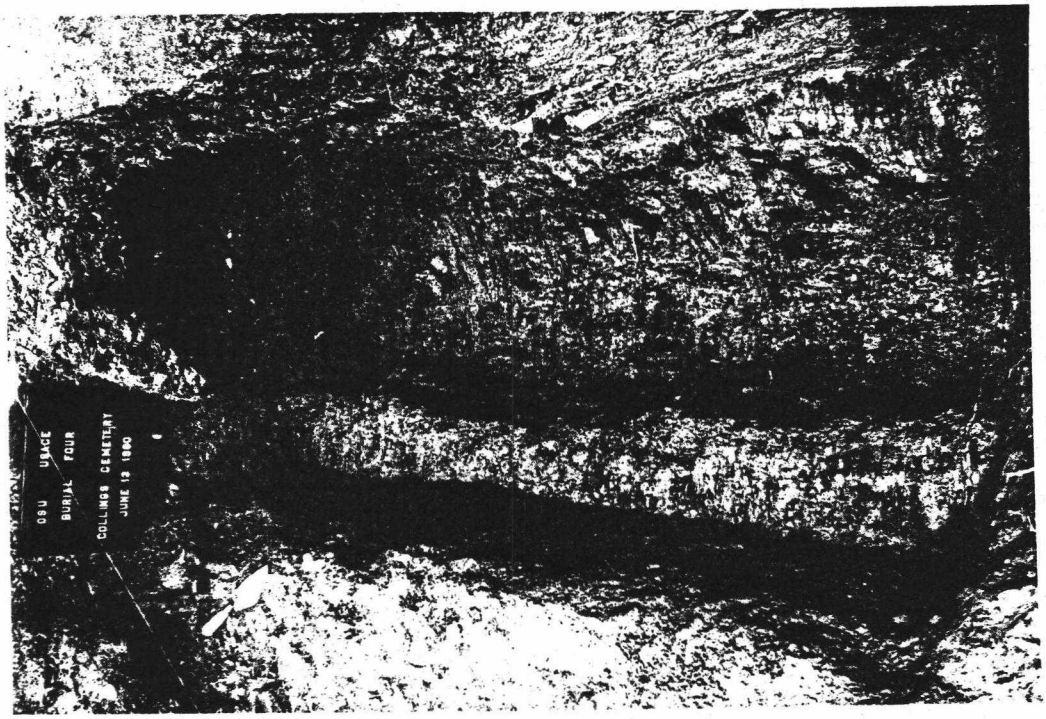


Figure 19. Cap boards, burial four, Collings Cemetery.

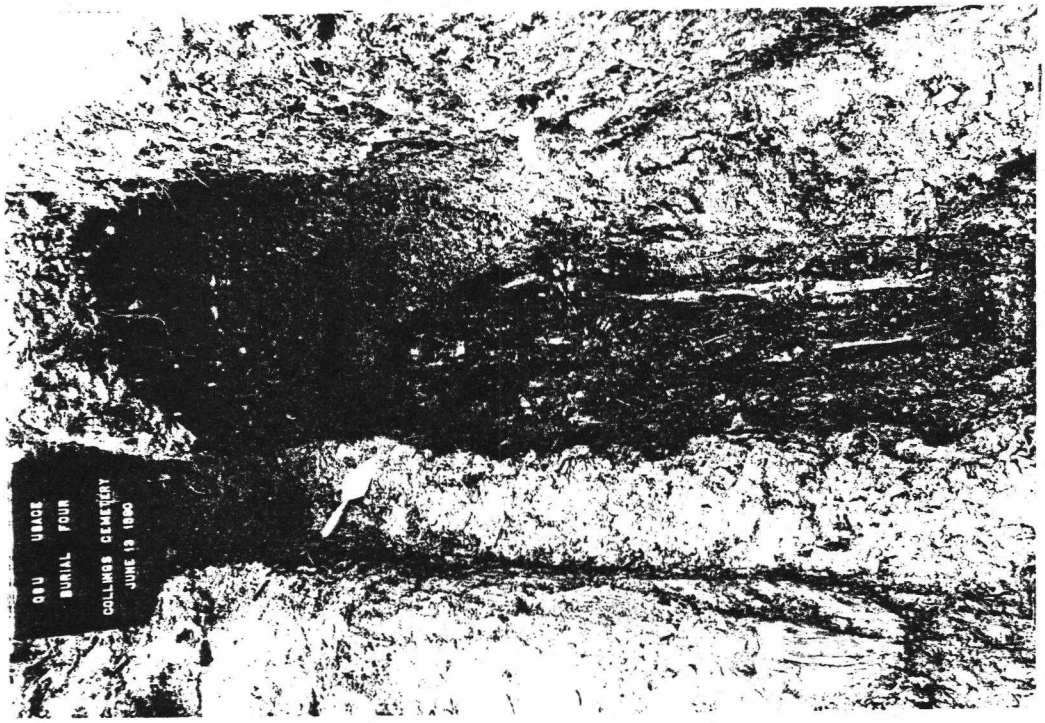


Figure 20. Skeletal remains, burial four, Collings Cemetery.

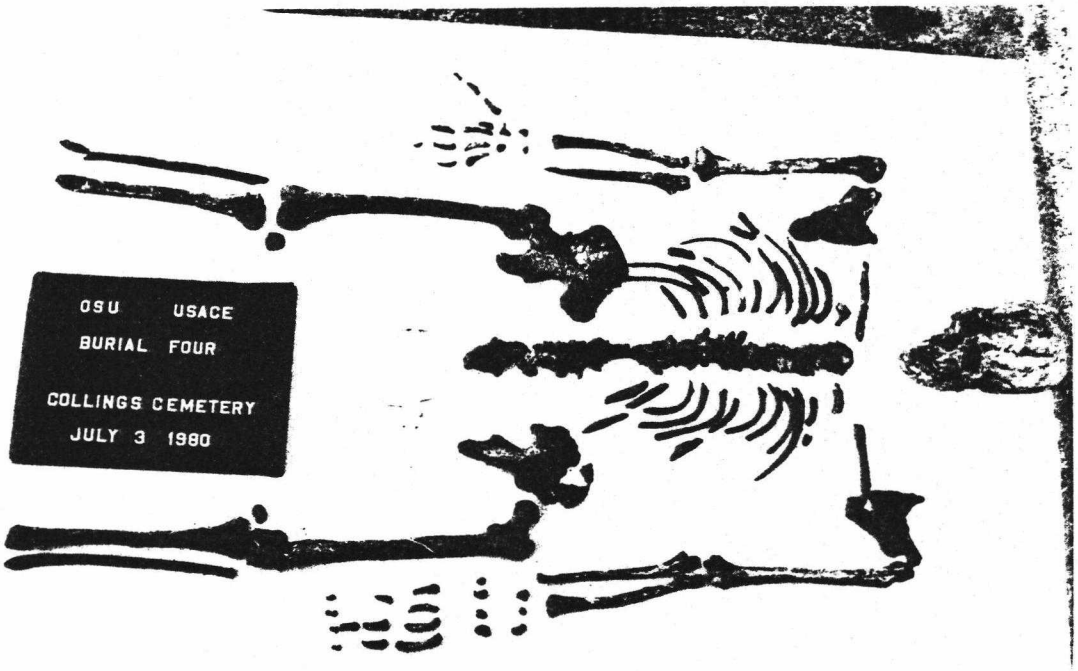


Figure. 21. Skeletal remains, burial four, Collings Cemetery.

The fragmentary nature of the post-cranial elements limited the osteometric data. However, both femora and the right radius were well preserved and allowed stature estimations to be calculated from their measured lengths. This data indicated that this individual was approximately 5' 5" to 5" 6" in height. Empiricial observations indicated that this individual was robust, though not nearly as robust as burial two. The sex indicators coupled with the burial artifacts, i.e. a suit coat,(Table 6) indicated that this individual was male.

Age estimations, based on the degree of sutural closure and the comparative lack of tooth loss, indicated that this individual was between 45 and 65 years of age at the time of death. These observations suggest that this was one of the youngest, if not the youngest adult buried in the cemetery.

The skull was by far the most complete and best preserved specimen recovered. Due to the quality of the preservation a great deal of osteometeric data and non-metric data were recorded (Figure 22 and Appendix C).

The cranium exhibited a number of interesting features. These included the presence of ossicles in both the lambdoidal and coronal sutures (Figure 23) as well as an ossicle at lambda (Figure 24). The palate exhibited a transverse torus (Figure 25) and a maxillary torus was observed on the left and right sides (Figure26).

In terms of dentition this was the only individual recovered with a full complement of teeth, although some teeth were represented by only the tooth roots. An interesting dentition pattern was noted resulting from the decay and abscessing of the second right maxillary molar and the decay of the first right maxillary premolar. In both cases the roots were present but the rest of the tooth had decayed. It was noted that the third maxillary

TABLE 6. ARTIFACTS, BURIAL FOUR, COLLINGS CEMETERY

Artifacts	Number of items
Machine-cut Square Nails	
Type 4	6
Type 6	25
Type 7	4
Type 10	1
Buttons	
Type 11	1
Type 12	1
Type 13	1
Wood	
Type 1	Casket
Fabric	
Type 3	1
Seeds	
Type 1	27

Figure 22. Skull recovered from burial four, Collings Cemetery.

Figure 23. Ossicles in lambdoidal suture, burial four, Collings Cemetery.

Figure 24. Ossicle at lambda, burial four, Collings Cemetery.

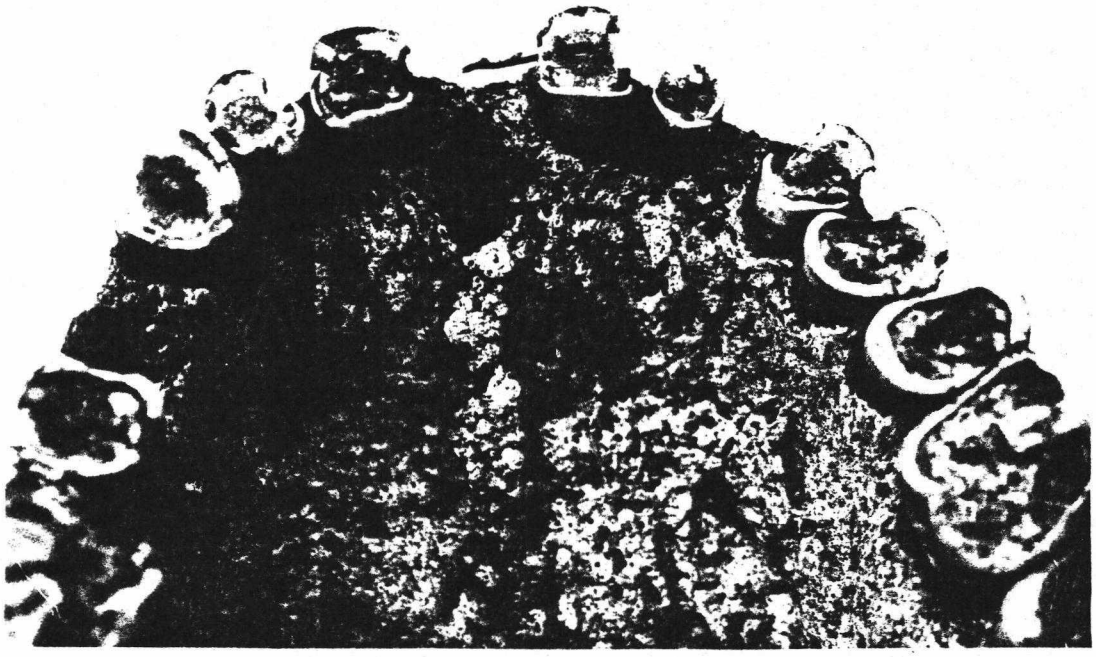


Figure 25. Palatine torus, burial four, Collings Cemetery.

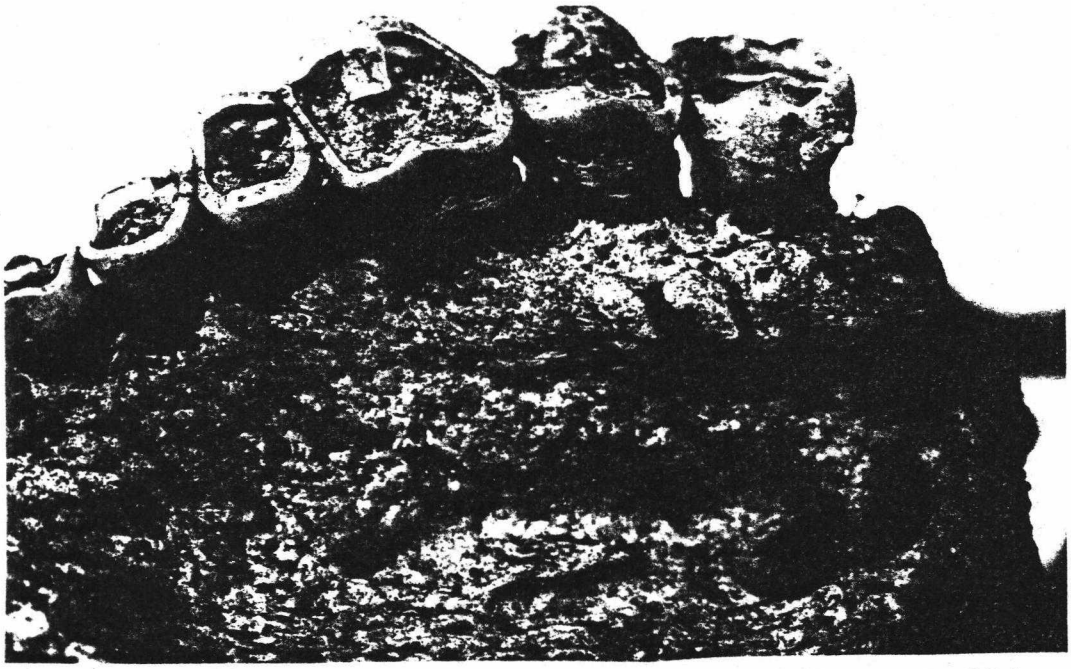


Figure 26. Maxillary torus, burial four, Collings Cemetery.

molar on the right side showed signs of having drifted towards the second molar position closing the gap left by the decay of the second molar. Consequently the occlusion was not perfectly symmetricial. The molars on the left side were noticably more worn, suggesting that this side was favored for chewing..

The chipped condition of the teeth was also of some interest. The secondary dentine of the anterior teeth appears to have been chipped out. The sharpness of the tooth edges indicates that whatever caused this phenomena was a result of post mortem activity (Figure 25).

Burial Five

Burial five was positioned parallel to and about 20 centimeters downslope from burial two (Figure 3). As noted with the other burials, the most prominent surface indicator of the grave's location was the presence of several large subangular cobbles near the western end of the grave. After removing about 30 centimeters of slope wash the grave's outline became discernible from the surrounding soil. The grave fill was found to be similar to that of burials one, two and four. The fill measured approximately 260 centimeters by 90 centimeters.

Upon removal of the grave fill the lid of the grave liner was dicovered 150 centimeters below the slopewash (Figure 27). The grave liner differed from the cap boards recovered from the other burials. Rather than a simple network of boards that covered the lid of the casket, the liner was a complete box enclosing the casket.

Although the lid of the casket and graveliner had collapsed into the casket and over the body the integrity of the casket and liner were still well enough preserved to allow a detailed reconstruction of both (figure 28).

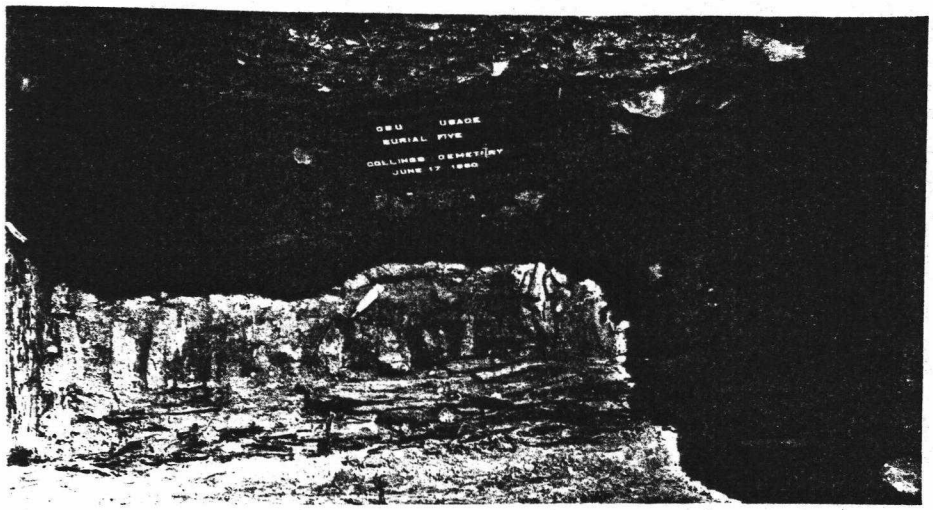


Figure 27. Grave liner, burial five, Collings Cemetery.

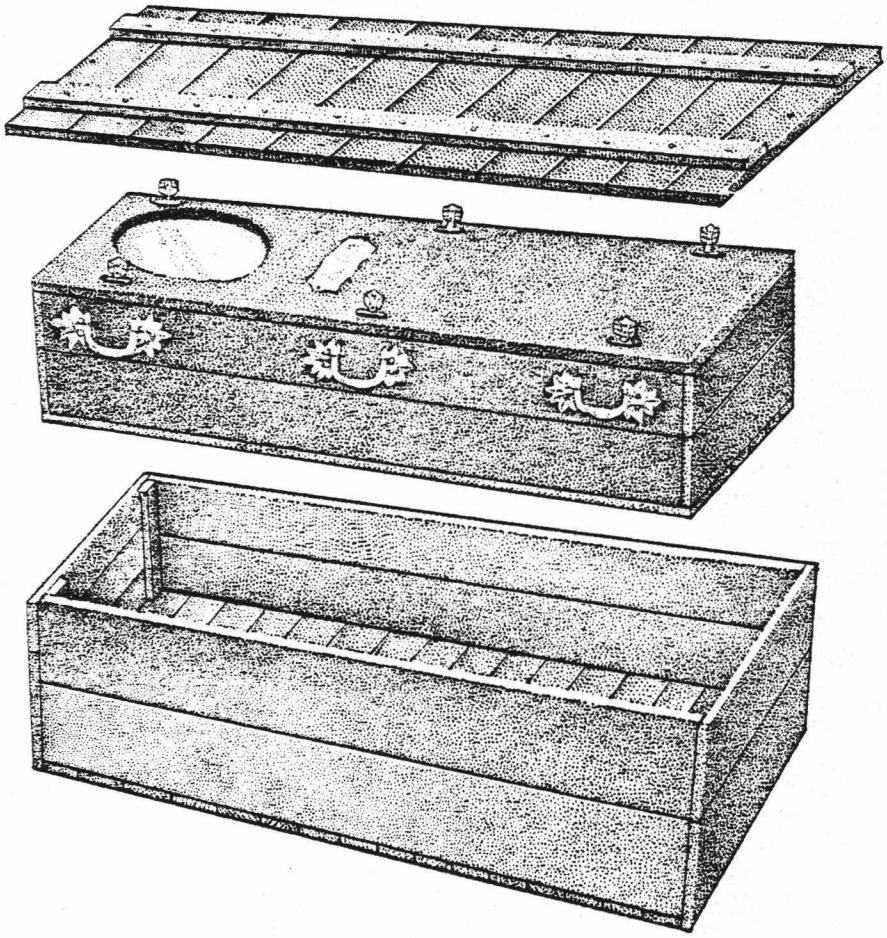


Figure 28. Artists reconstruction of casket and grave liner, burial five, Collings Cemetery (Brauner and Jenkins, 1980)

The grave liner measured 211 centimeters by 65 centimeters by 45 centimeters. The lid of the liner was constructed of 4"x1" lumber, running perpendicular to the long axis of the box and was held together with two parallel support stringers approximately 3"x1" in cross section. The end boards of the liner were also placed perpendicular to the long axis while the side boards ran parallel to the long axis. The bottom of the graveliner was similar in construction to the lid but the support stringers, used on the lid, were not employed in its construction.

The casket was constructed in a manner similar to that of the liner but the boards forming the floor of the casket were noted to run parallel to the long axis rather than perpendicular to it.

Both the casket and liner were constructed using round wire drawn nails. The lid of the liner was secured with screws while the lid of the casket was attached with decorative fastners (type 2, Appendix B).

A number of other casket accessories also were recovered. These included six silver-plated casket handles and a silver-plated plaque with the words "At Rest" inscribed on it (Figure 29). Another interesting feature was the presence of a glass face-plate on the lid of the casket (Figure 30). Inaddition, fragments of paint adhering to the wood indicated that this casket had been painted. Other than the casket hardware and accessories, only a few buttons and a bow tie were recovered (Table 6).

A great deal of root activity was noted within the casket and the preservation of the skeletal remains was rather poor (Figures 31 and 32). The cranium exhibited post-mortem deformation and crushing; as a result it was quite fragmentary. The mandible showed considerable evidence of bone resorption but root cavities were noted

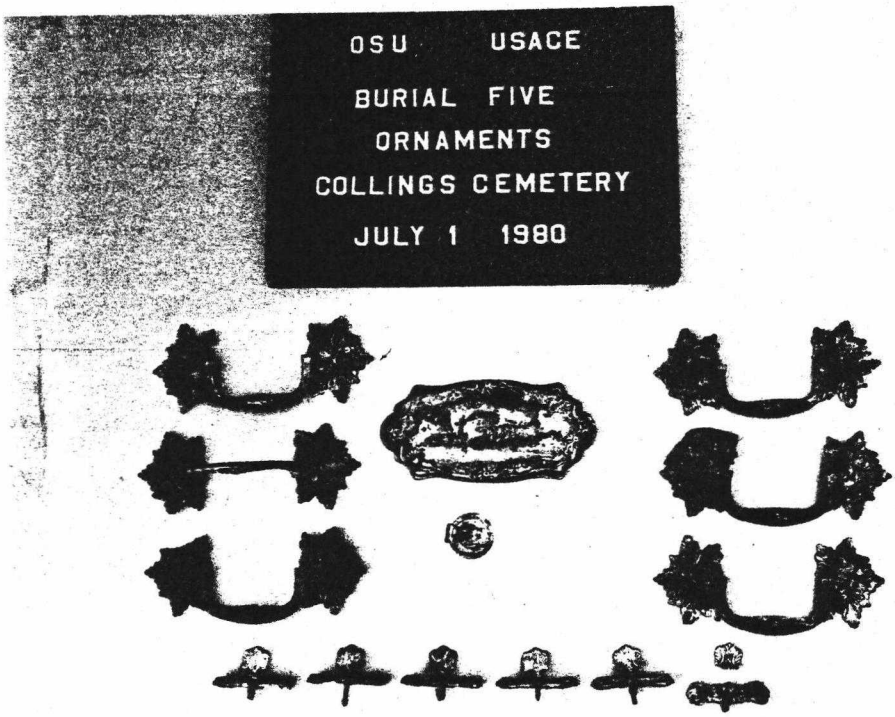


Figure 29. Artifacts, burial five, Collings Cemetery.

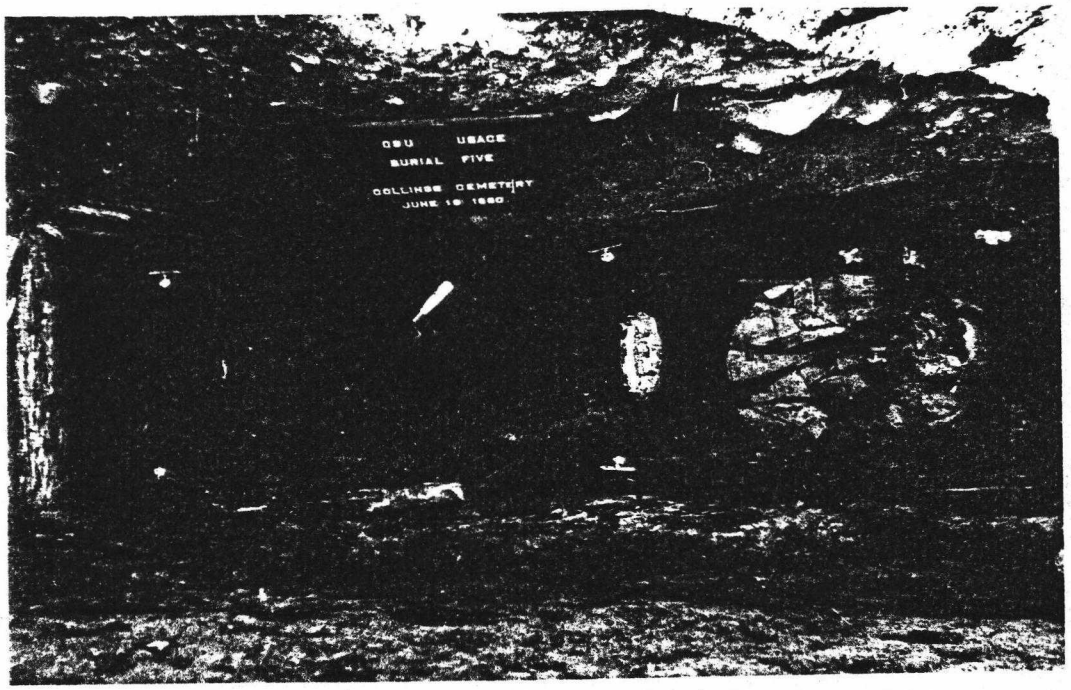


Figure 30. Casket lid, burial five, Collings Cemetery.

TABLE 7. ARTIFACTS, BURIAL FIVE, COLLINGS CEMETERY

Object	Number of Items
Wire Drawn Nails	
Type 2	16
Type 5	46
Type 6	89
Type 15	5
Screws	
Type 1	4
Type 2	24
Type 3	3
Type 4	6
Type 6	4
Casket Hardware	
Type 1	3
Type 2	2
Type 3	3
Type 5	1
Casket Handles	
Type 1	6
Casket Ornaments	
Type 1	1
Type 2	6
Type 7	1
Miscellanoeus Metal Objects	
Type 1	1
Glass	
Type 1	1
Wood	
Type 3	Casket
Type 6	Grave liner

(TABLE 7. continued)

Fabric	
Type 10	1
Buttons	
Type 4	4

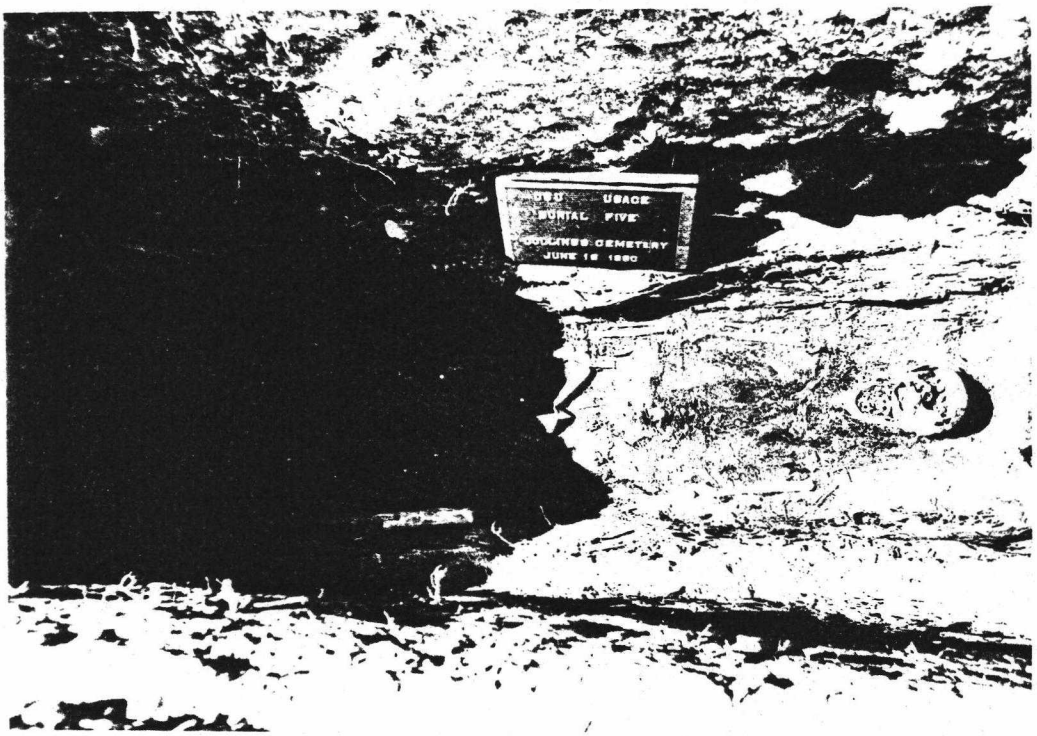


Figure 31. Skeletal remains, burial five, Collings Cemetery.

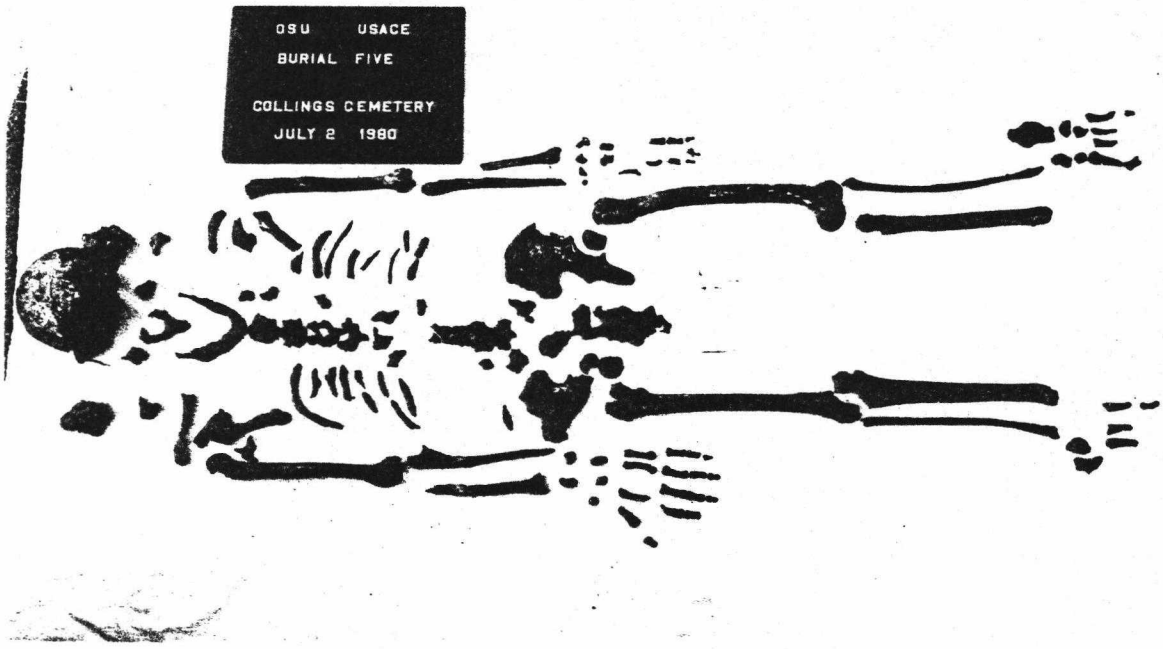


Figure 32. Skeletal remains, burial five, Collings Cemetery.

in the canine and lateral incisor positions on both the left and right sides, Due to the deteriorated condition it is unclear whether the central incisors were present or not. A root cavity was also observed in the first premolar position on the right side. The maxillary alveolus was not recovered.

Post- cranially the deteriorated condition of the remains limited the amount of osteometric data obtainable. However, it was possible to calculate the stature from the left femur. This data indicated an approximate height of 5' 7". This individual was moderately robust and exhibited some lipping on the vertebral articulating facets. Sutural fusion was well underway although not complete and ossicles were observed in the coronal and lambdoidal sutures and at lambda. Observations of the skeletal data suggest that this individual was a male and at least 55 years of age at the time of death.

Burials Six, Eight, and Nine

Burials six, eight and nine were all identified as premature infant burials. The burials were located in a cluster down slope from burial four (Figure 3). A rock cairn had been placed over each grave and the burials were all encountered between 20 and 30 centimeters below a slopewash over-burden. The grave fill in each case measured approximately 60 centimeters by 30 centimeters forming a roughly rectangular shape. All the burials were oriented with the long axis east to west.

Rocks placed around burial six were a contributing factor in the determination of the casket size and shape (Figure 33). The casket was rectangular in shape and measured 40 centimeters by 20 centimeters by 10 centimeters. Machine-cut square nails were used in the construction of the casket (Table 8).

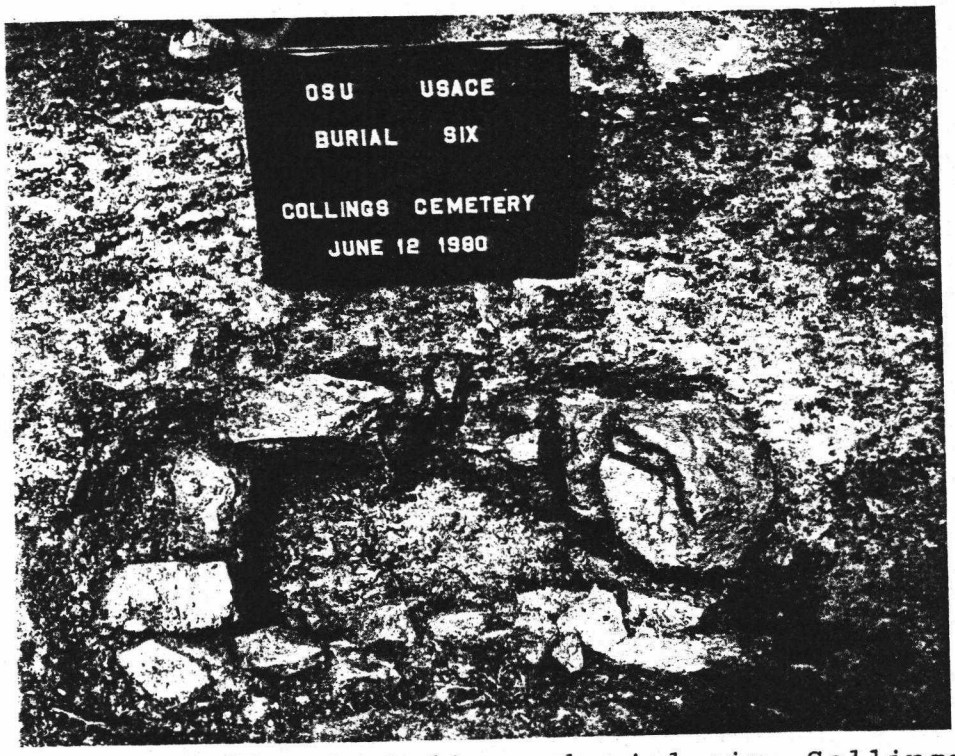


Figure 33. Rock liner, burial six, Collings Cemetery

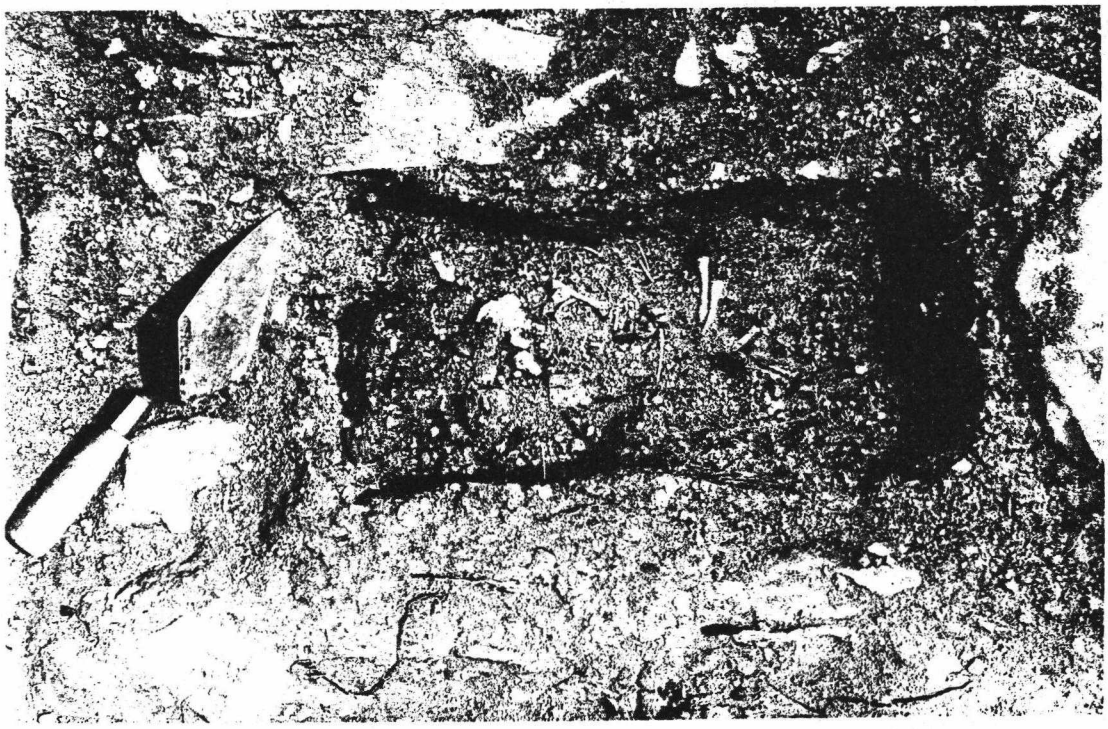


Figure 34. Skeletal remains, burial six, Collings Cemetery.

TABLE 8. ARTIFACTS, BURIAL SIX, COLLINGS CEMETERY

Artifacts	Number of Items
Machine-cut Square Nails	
Type 1	17
Type 5	4
Wood	
Type 2	Casket

Although the wood was poorly preserved the skeletal remains were in excellent condition (Figures 34 and 35). The preservation of the cranial elements provided a means of accurately determining the age of this individual. This data indicated an intra-uterine age of seven months.

Post-cranially a large number of vertebral fragments and long bone diaphyses were recovered. In addition, nine metacarpals/tarsals also were recovered (Figure 35). The determination of the individual's sex was not possible.

The casket of burial eight (Figure 36). measured 10 centimeters by 20 centimeters. No wood was preserved but 28 machine-cut square nails were recovered (Table 9). Unlike burial six no rocks had been placed around the casket.

Skeletal preservation was also poor, with only ten bone fragments being recovered (figure 37). Nine of these were identified as cranial fragments; the size and developmental similarity of these to those of burial six suggests that this individual was approximately the same age as burial six.

Burial nine had the poorest preservation of all the infant burials. Only a few wood fragments, unidentified metal (nails?) fragments, one machine-cut square nail and some staining were noted (Table 10). The casket was originally rectangular and similar in size to the casket recovered from burial eight.

Burial Seven

Burial seven was situated parallel to and about 40 centimeters downslope from burial five (Figure 3). A group of subangular cobbles and a temporary gravemarker were located near the western edge of the grave. The outline of the fill, which measured 230 centimeters by 105 centimeters, was distinguishable only after

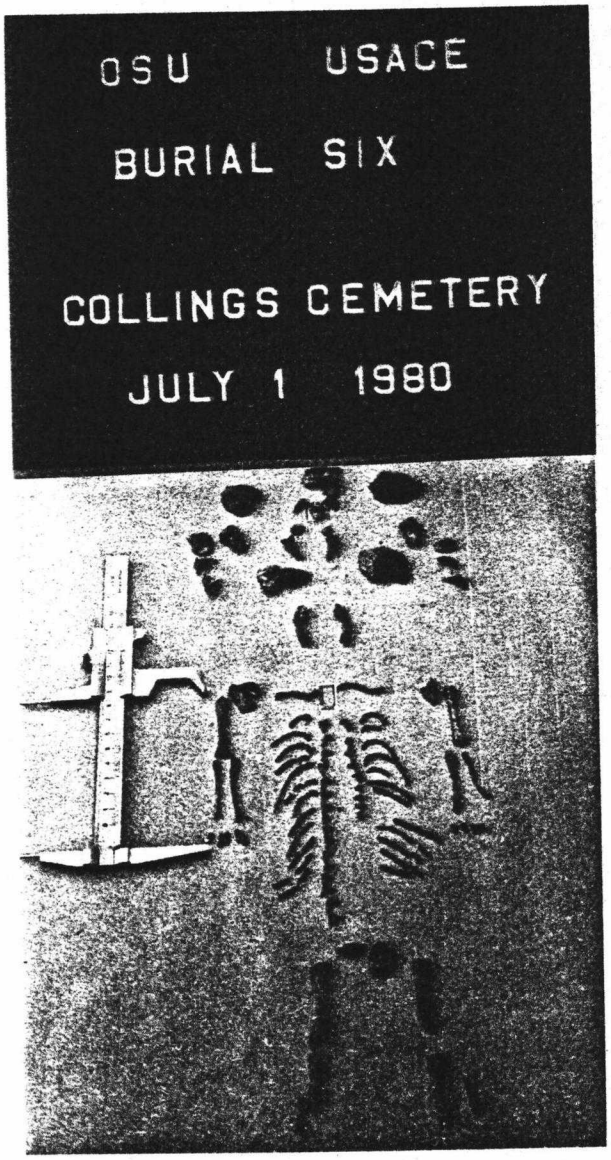


Figure 35. Skeletal remains, burial six, Collings Cemetery.

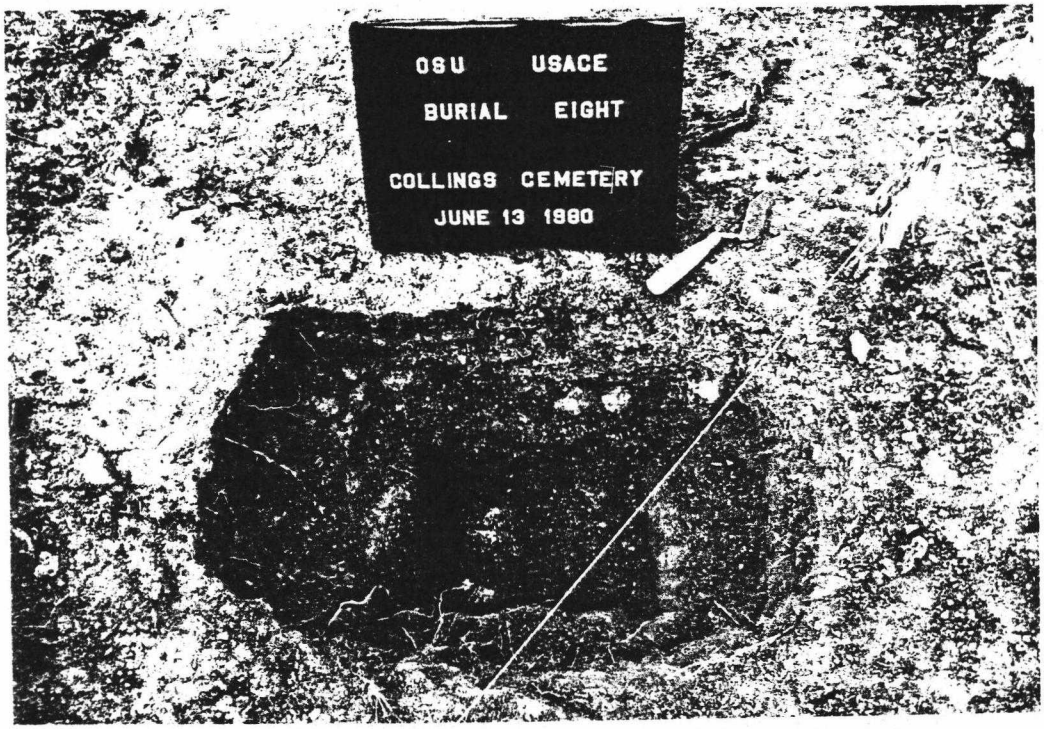


Figure 36. Burial eight, Collings Cemetery.

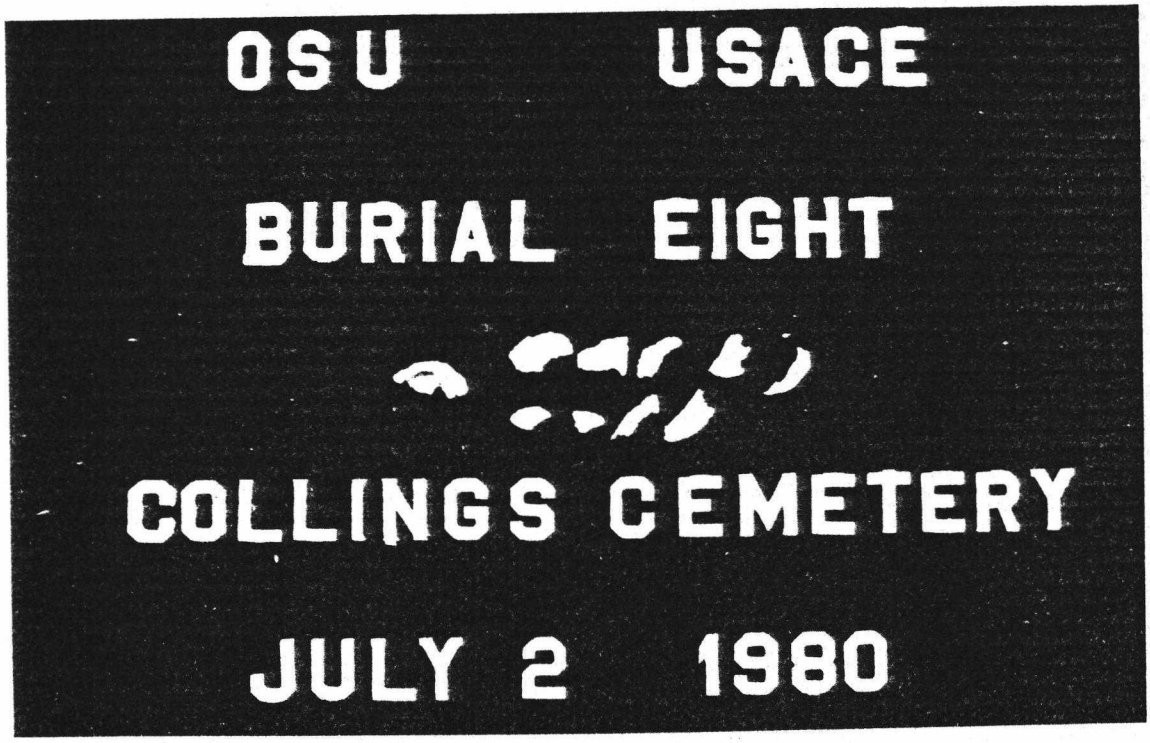


Figure 37. Skeletal remains, burial eight, Collings Cemetery.

TABLE 9. ARTIFACTS, BURIAL EIGHT, COLLINGS CEMETERY

Artifact	Number of Items
Machine-cut Square Nails	
Type 1	20
Type 5	8

TABLE 10. ARTIFACTS, BURIAL NINE, COLLINGS CEMETERY

Artifact	Number of Items
Machine-cut Square Nails	
Type 5	1
Miscellaneous Metal Objects	
Type 3	2
Wood	
Type 2	casket

removing between 30 and 40 centimeters of slopewash. Once the grave was defined the fill was found to be similar to that of burial one.

At approxiamtely 140 centimeters below the slopewash, a network of cap boards was encountered. These had collapsed inward into the center of the coffin in a manner similar to the previously described burials. The lateral margins of the boards were still in the horizontal plane extending beyond the margins of the coffin (Figure 38).

Although the sides of the coffin and the lid had collapsed inward, a detailed reconstruction of the coffin was still possible (Figure 39). The coffin measured six feet in length and varied in width from 14 inches at the foot to 24 inches at the shoulder and then constricted again to 10 inches at the head. The side boards of the coffin had been bent to form the expanding and constricting configuration.

The floor and lid of the coffin were constructed utilizing three boards running parallel to the long axis (Figure 40). The lateral edges were cut to conform to the expanding and constricting sides. The lid was segmented in three sections. The coffin appears to have been constructed primarily with round wire drawn nails although a few machine-cut square nails and a single screw were also recovered.

Paint adhering to the wood fragments indicated that this coffin was originally painted white. In addition to the paint, the coffin had been decorated with a lily pad and flower-shaped candle holder, placed on the lid near the head of the coffin. Screw-in ornamental fasteners, similar to those from burial five, were used to secure the coffin lid (Figure 41). The coffin handles were identical to those from burial five on the front surface but differed slightly on the back side (type 3, Appendix D).

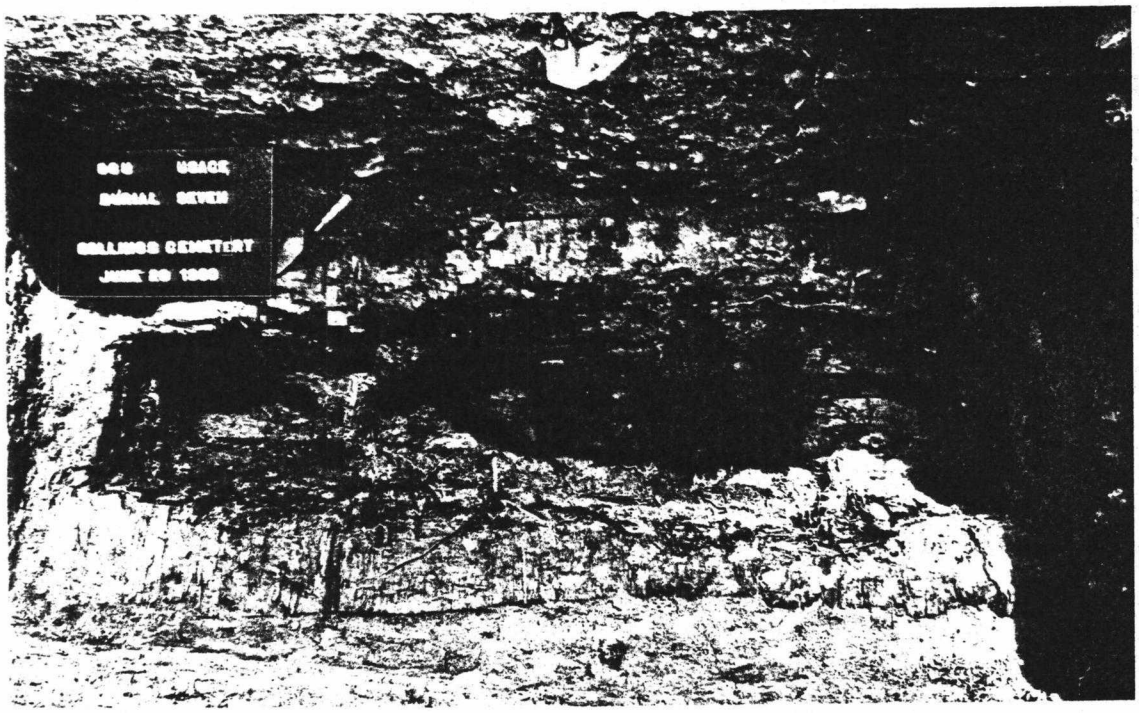


Figure 38. Collapsed cap boards and coffin lid, burial seven, Collings Cemetery.

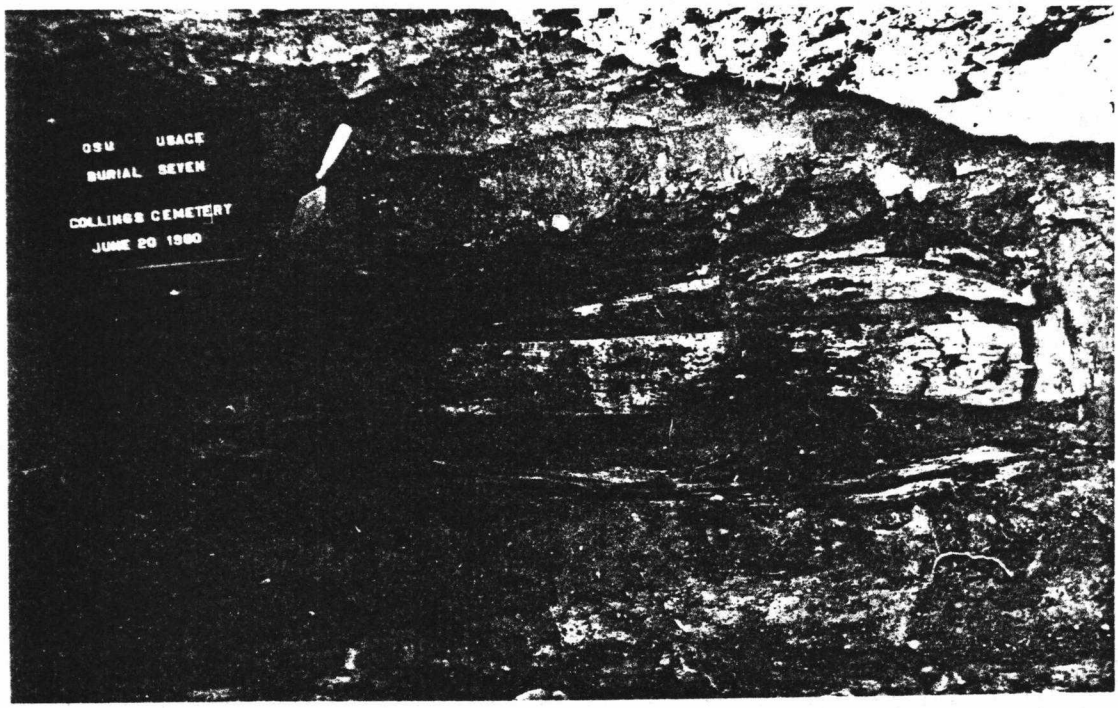


Figure 39. Exposed coffin lid, burial seven, Collings Cemetery.

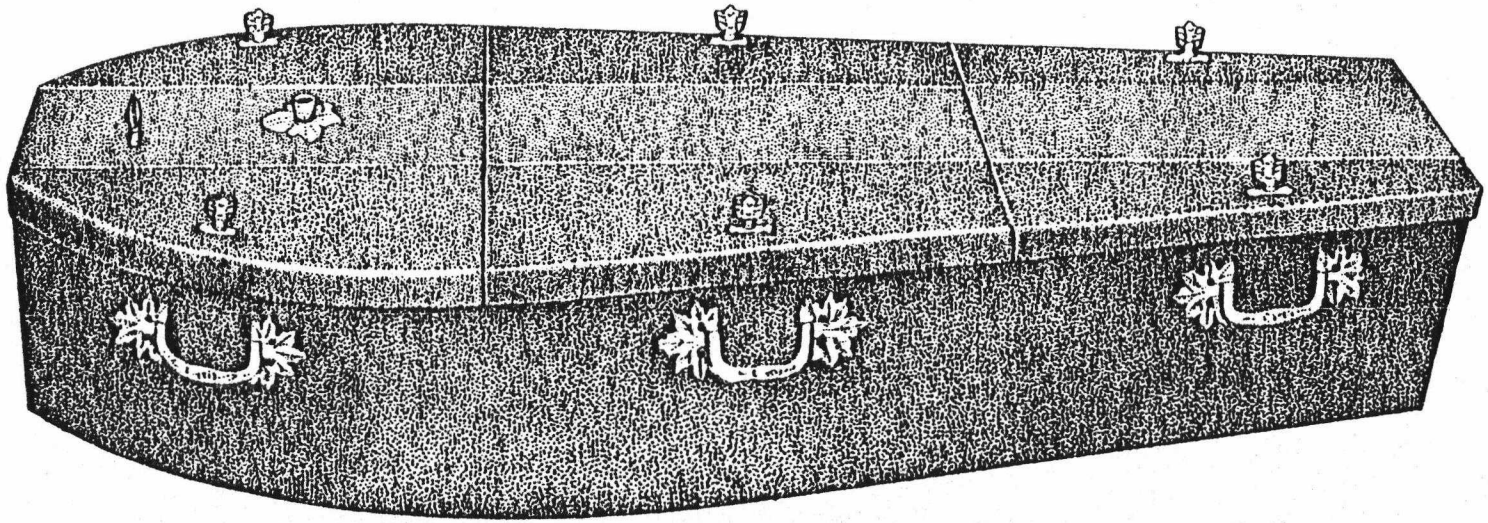


Figure 40. Artist's reconstruction of the coffin from burial seven, Collings Cemetery (Brauner and Jenkins, 1980)

Figure 41. Ornamental fastener, burial seven, Collings Cemetery.

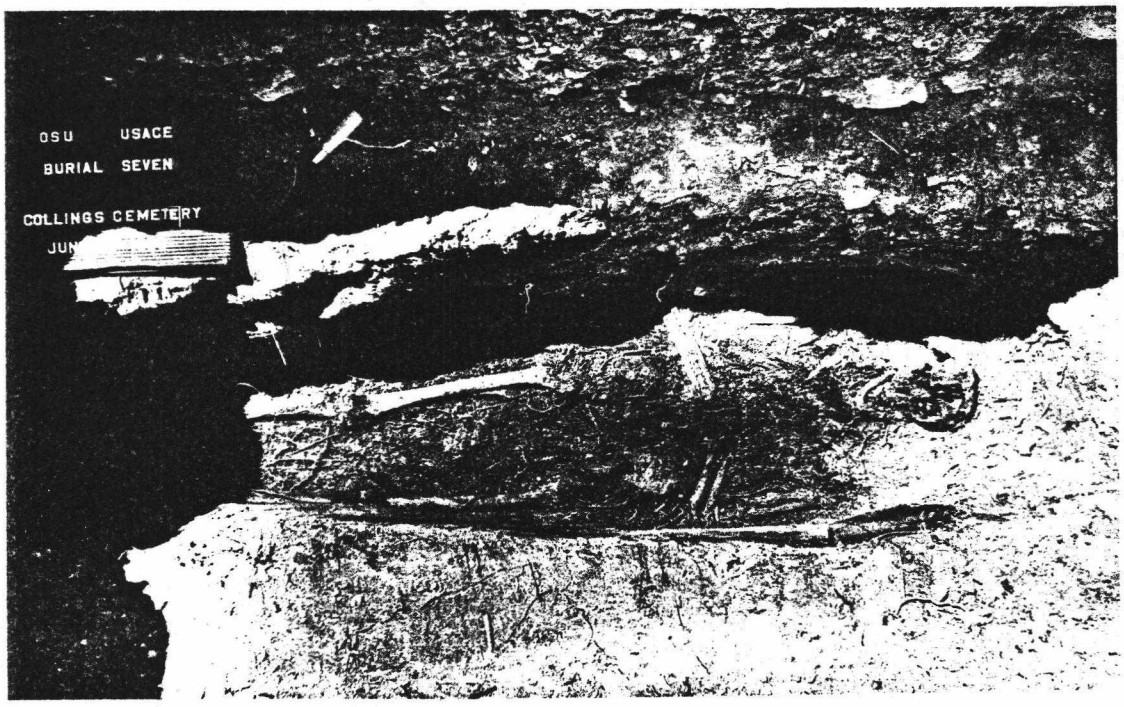


Figure 42. Exposed skeletal remains, burial seven, Collings Cemetery.

No grave goods were found in the coffin but a bow tie and a few buttons were recovered (Table 11).

The skeletal preservation, although not as good as burials two and four, was such that some osteometric observations were possible (Figures 42 and 43). Root activity, as described for the other burials, was also present and, coupled with the crushing from the collapse of the coffin, contributed to the destruction of the remains.

The cranium exhibited post-mortem deformation and crushing, thus limiting the number of cranial osteometric observations. The mandible showed signs of alveolar resorption but tooth roots were observed in the left first molar and right lateral incisor positions. In addition, a possible root cavity was observed in the right third molar position.

Post-cranially this individual was in a very deteriorated condition and very few osteometric observations were possible. Suprisingly all the ribs on the rib side and nine on the left were recovered. This may have been a result of having excavated the torso section of this individual in the laboratory (Figure 44). These elements decayed rapidly in the other graves.

An approxiamte femur length was determined using both the right and left femora to get a composite length. For details see the laboratory methodology section. This information and a comparison with the other burials allowed a stature estimation of 5' 6 1/2" to 5' 7 1/2" to be made.

The well-developed mastoids, a narrow sciatic notch and a bow tie, found in situ, indicated that this individual was male. The loss of teeth, resorption of the mandible, and the degree of sutural closure indicated that this individual was over 60 years of age when he died.

TABLE 11. ARTIFACTS, BURIAL SEVEN, COLLINGS CEMETERY

Artifacts	Number of Items
Wire Drawn Nails	
Type 1	5
Type 10	1
Type 11	2
Type 13	13
Type 14	4
Machine-cut Square Nails	
Type 8	1
Screws	
Type 5	1
Coffin/Casket Hardware	
Type 1	1
Type 4	1
Coffin/Casket Handles	
Type 1	6
Coffin/Casket Ornaments	
Type 3	7
Type 5	1
Type 6	1
Wood	
Type 6	Coffin
Fabric	
Type 1	1
Type 2	1
Buttons	
Type 4	7
Type 14	4
Type 15	3
Type 16	3
Type 17	1

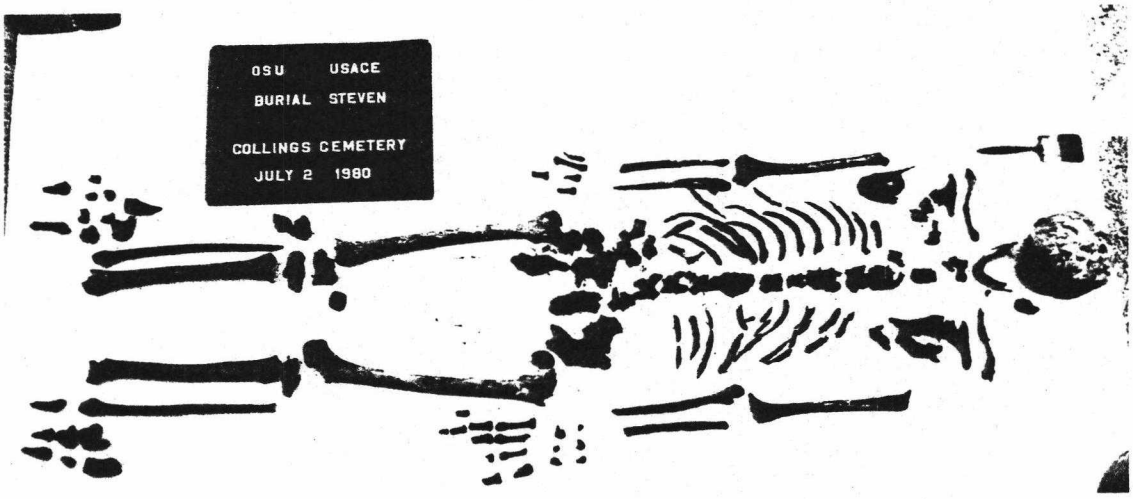


Figure 43. Skeletal remains, burial seven, Collings Cemetery.

Figure 44. Torso section of burial seven during laboratory excavation, Collings Cemetery.

Burial Ten

Burial ten was situated west of burial one and slightly upslope (Figure 3). On the surface, the grave was easily identified by a shallow oval depression and a small pile of subangular cobbles near the western edge of the grave. Upon removal of the sod, the grave's outline became readily apparent, and measured only 170 centimeters by 80 centimeters. It was smaller than the adult graves indicating that this was probably the grave of a child.

The grave fill was a clay matrix very similar to that of burial three. As with burial three, preservation was poor. At approximately 185 centimeters below the ground surface small paper-thin pieces of wood were encountered. These fragments and the arrangement of machine-cut square nails indicate that the coffin was 130 centimeters in length and expanded from 20 centimeters in width at the foot to 40 centimeters at the shoulder and then narrowed again to 20 centimeters at the head (Figure 45).

No skeletal remains were preserved but three white glass shirt buttons and two seated liberty half dollars were recovered (Table 12). The arrangement of the buttons indicated that the head had been placed to the west while tha half dollars appear to have been placed on the floor of the coffin on either side of the head (Figure 46). As per the disinterment contract, the sediment in the coffin was collected for reburial.

Burial Eleven

Burial eleven was located down slope from the infant burials (Figure 3). Unlike the other graves, the surface of this burial was marked by two piles of subangular

TABLE 12. ARTIFACTS, BURIAL TEN, COLLINGS CEMETERY

Artifacts	Number of Items
Machine-cut Square Nails	
Type 3	8
Type 5	1
Type 7	22
Type 10	8
Buttons	
Type 9	1
Type 10	2
Miscellaneous Metal Objects	
Type 5	2

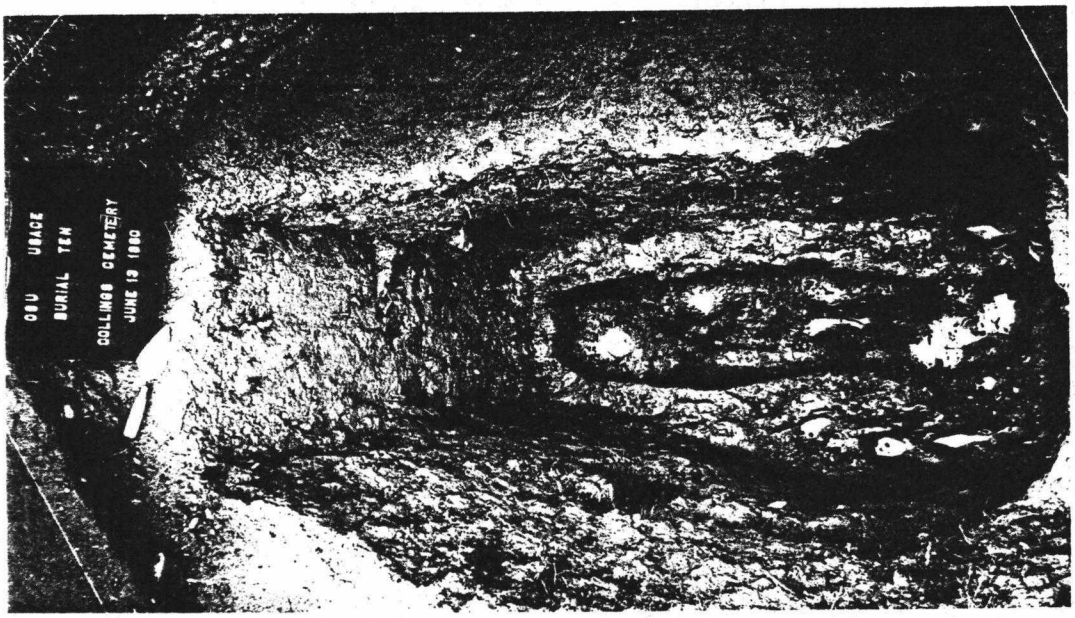


Figure 45. Burial ten exposed, Collings Cemetery.

Figure 46. Burial ten coin detail, Collings Cemetery.

cobbles located near the head and foot of the grave. After the sod had been removed the outline of the grave was readily discernible and measured 270 centimeters by 90 centimeters.

The top of the casket was encountered 160 centimeters below the ground surface (Figure 47). A rectangular box, it measured 218 centimeters in length and 70 centimeters in width (figure 48). Due to decay and crushing, the depth of the casket was not discernible. The casket had been constructed using wire drawn nails.

A variety of ornamental accessories were added to the finished casket shell (Table 13). These accessories and the casket handles, with the exception of a metal plaque similar to one recovered from burial five, were different than those recovered from the other burials. The handles were a composite of wood and metal and had been manufactored by the S.M.C. Company (Figures 49 and 50). To date, nothing is known about this company but a patent date on the back of the handles was useful in providing a lower limiting date for this burial.

The skeletal remains were in an extermely poor state of preservation (Figures 51 and 52). Post-cranially a limited number of observations were possible. Cranial preservation was a little better but still quite fragmentary. Most of the calvarium was present but little of the face or occipital region was preserved. Hair was noted on the posterior of the calvarium fragments and on the mandible. Although the mandible was preserved it was badly deteriorated and was held together by only a matrix of soil and roots. In addition to the facial hair the mandible exhibited a considerable amount of alveolar resorption.

Stature estimations were made by comparing this burial to the other burials. This comparison indicated that this individual was approximately 5' 5" in height.

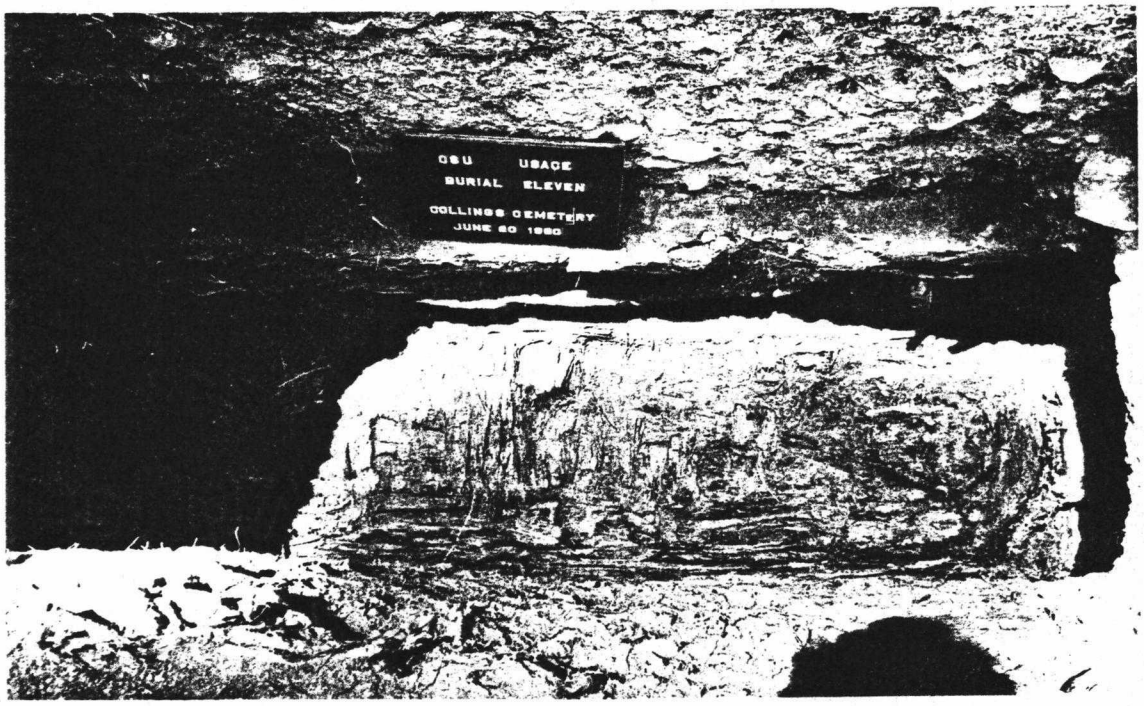


Figure 47. Casket, burial eleven, Collings Cemetery.

Figure 49. Handle detail, burial eleven, Collings Cemetery.

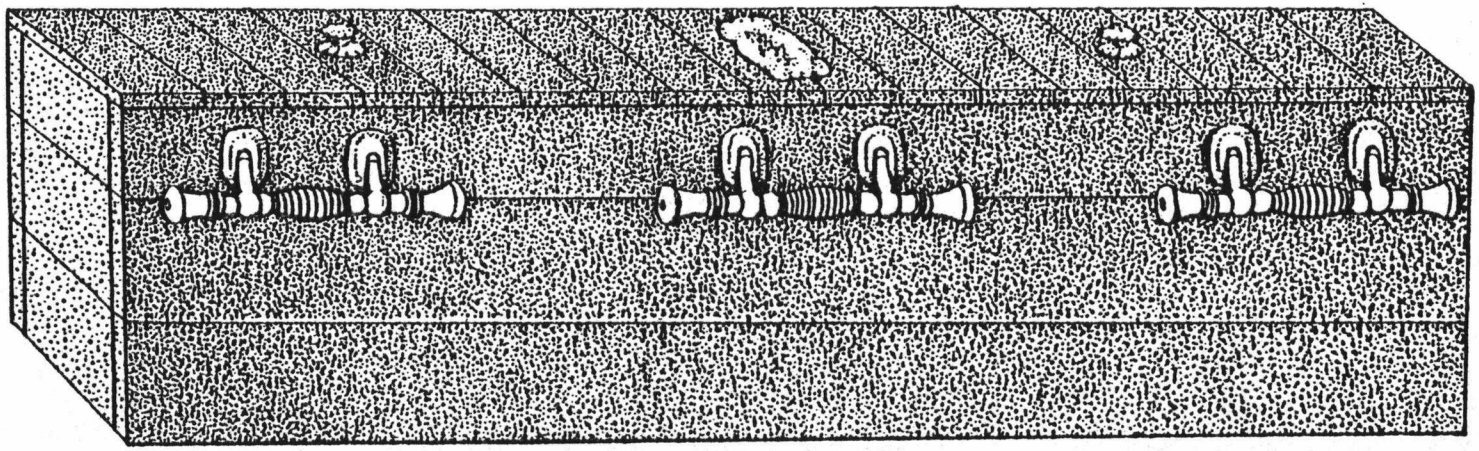


Figure 48. Artist's reconstruction of the casket recovered from burial eleven, Collings Cemetery.

TABLE 13. ARTIFACTS, BURIAL ELEVEN, COLLINGS CEMETERY

Artifacts	Number of Items
Wire Drawn Nails	
Type 4	32
Type 8	30
Type 12	9
Type 16	85
Machine-cut Square Nails	
Type 9	1
Coffin/Casket Hardware	
Type 5	2
Type 6	2
type 7	2
Casket Handles	
Type 2	6
Coffin/Casket Ornaments	
Type 4	2
Type 8	1
Miscellaneous Metal Objects	
Type 2	1
Type 3	1
Type 6	1
Wood	
Type 4	Casket
Type 5	Casket Handle
Type 5	Casket
Fabric	
Type 4	1
Type 5	1
Type 6	1
Type 7	1
Buttons	
Type 4	3

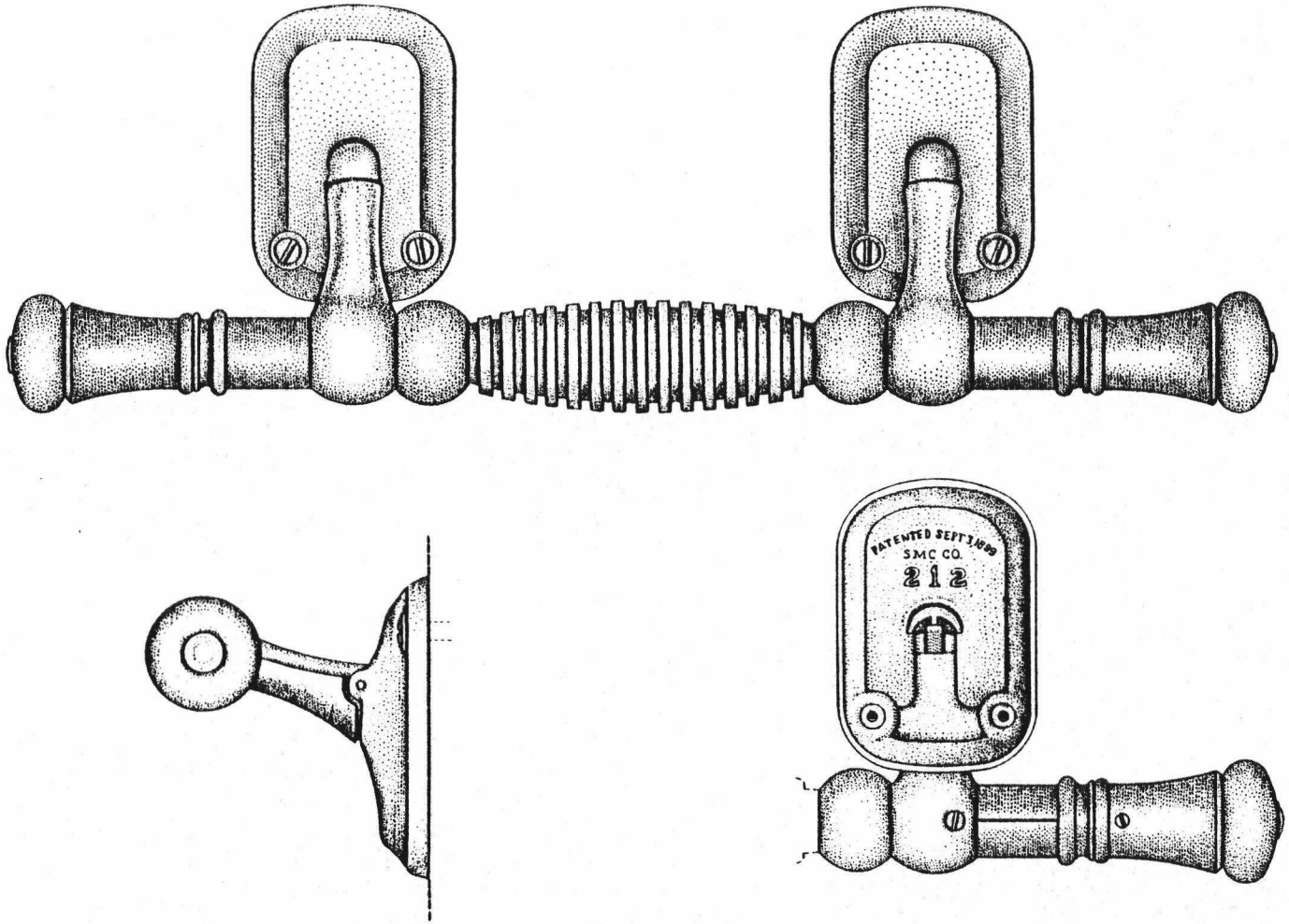


Figure 50. Artist's reconstruction ofCasket handles from burial eleven, Collings Cemetery

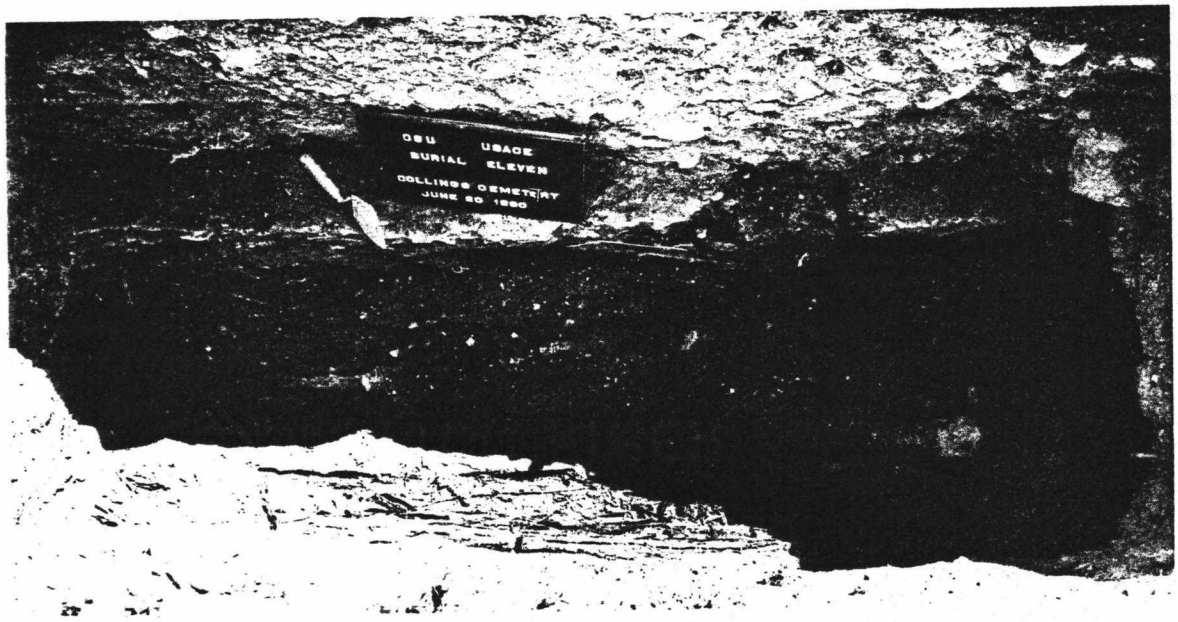


Figure 51. Skeletal remains, burial eleven, Collings Cemetery.

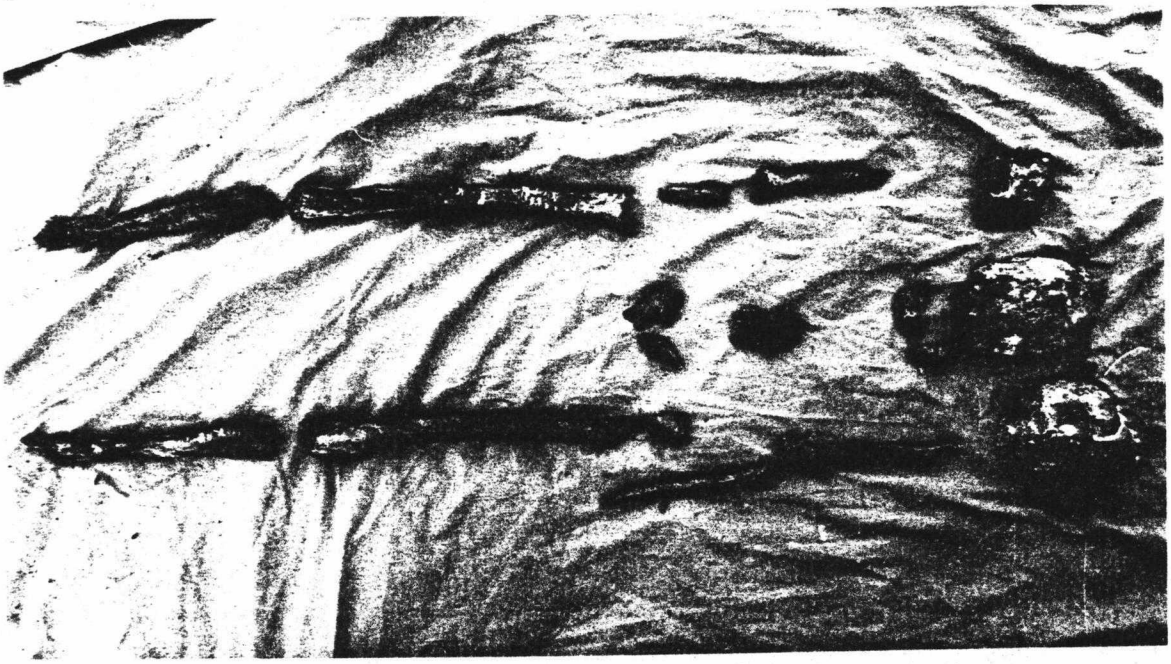


Figure 52. Skeletal remains, burial eleven, Collings Cemetery.

The degree of sutural closure and the resorption of the mandible indicated an age of at least 60 years of age at the time of death. The facial hair and bow tie recovered suggest that this individual was male.

Burial Twelve

After the removal of the first eleven burials no other obvious graves were evident. However as a safeguard the area surrounding the cemetery was examined. A small oval depression associated with a number of subangular cobbles (Figure 53), similar to the surface indicators found associated with the other burials, was located about three meters down slope from burial seven (Figure 3). This unit measured approximately 89 centimeters by 50 centimeters in plane view and was 65 centimeters in depth. This unit was unique in that the long axis was oriented in a northeast-southwest direction rather than in an east-west direction like the other burials.

No cultural or skeletal materials were recovered, but a slight organic staining was noted. The variability of preservation from grave to grave was such that it could not be determined clearly if this was a burial pit or whether it represented some unknown cultural activity. As a result one cubic foot of fill was collected for reinterment as per contract specifications.

Figure 53. Surface of burial twelve, Collings Cemetery.

VII. BURIAL IDENTIFICATION

Watkins Cemetery

The disinterment contract listed the burials in the Watkins Cemetery as John Doe Watkins and Jane Doe Watkins. The living relatives, as previously mentioned, agreed that the burials were the children of Mark A. Watkins and Martha (Langley) Watkins. However the ages and names of these individuals were in question.

The archeological recovery of two burials provided some clarifying information. The size and similarity of burial two to the infant burials at the Collings Cemetery suggests that this grave was also that of an infant or a stillbirth. The upper portion of burial one had been destroyed; as a result only the lower ten centimeters of fill remained. The lack of skeletal or artifactual remains limited the conclusions that could be drawn from this grave. However the surface dimensions of the remaining fill, 40 centimeters by 80-90 centimeters, were not much larger than that of burial two. This in turn suggests that this grave was also that of an infant or stillbirth.

The question of whether or not one of these graves is that of James Watkins also needs to be addressed. The size of the grave would argue against this possibility. James is reported to have been approximately eight or nine years of age when he died (Watkins and Collings, 1980) and the size of the graves suggests that they were for persons much smaller than eight or nine.

In summation, two burials were recovered behind the site of the Watkins' homestead. These were the children of Mark A. and Martha Watkins and both burials were probably infants or stillbirths. They were probably interred between 1889 and 1895. The possibility that

one of these burials is that of James Watkins is highly unlikely.

Finally, the possibility was suggested that there were other burials located somewhere behind the Watkins' homestead. However, the archeological data does not support this. The relatively undisturbed areas were not good locations for burials, being steep and rocky, and no indicators of any burials were found in these areas. The most highly disturbed area, where the two recovered burials were located, was sufficient in size to have allowed for more burials and would have been the logical location for any other burials. A thorough surface and subsurface examination of this area revealed no trace of any graves besides the two recovered.

Collings Cemetery

The determination of the identity of the recovered remains at the Collings Cemetery began with a careful study of the historical, archeological and physical anthropological data for correlations between these data. The most readily apparent and obvious possible choices of identification were dealt with first. These were the adult female, Bessie Langley, the child and infant burials. With these determinations made, identification of the six adult males, Charles Williams, Edward Langley, Thomas Jefferson Fawcett, Freeman Oscar Collings, James Terry and Stephen Terry, was initiated.

The first identifications (Brauner and Jenkins, 1980) were made in July 1980 as partial fulfillment of the disinterment contract. This initial identification was hampered by time constraints imposed upon the project to meet contract deadline. It was further hampered by a lack of data. Since the first identifications more information has been compiled that further narrows the

possible choices of identification.

Identification began with the infant burials. The two infants listed in the Jackson County Cemetery records were identified as the son and daugther of Freeman Oscar Collings. It can be assumed then that two of the recovered infant burials were the Collings' children. The identity of the third burial is unknown. However, it would be a fairly safe assumption that the third infant was also related to the Collings family. This is based on the fact that the Watkins' infants were buried behind the Watkins' homestead and other families made use of the Jacksonville and Logtown Cemeteries. Finally, it is not known which of the three infants recovered are those listed in the cemetery records.

The identity of the child's grave is also in question. No written records were located which indicated that a child was buried in the cemetery. Two possible choices of identification can be considered. The first possiblity is the orphan boy Ben reported by Frank Collings (1980) and the second is James Watkins. The latter would mean that the James listed in the disinterment contract is James Watkins, whose burial location is unspecified. He is known to have died in 1886 (Gaston, 1912) in the Applegate area but he is not listed in any cemetery records. Living relatives do not know the location of his grave, although it was suggested by Guy Watkins (1980) and Frank Collings (1980) that James was buried at the Watkins Cemetery; however, archeological evidence does not support this.

When excavations began, a possible solution to the question of the identity of burial ten was hoped for in the analysis of the remains. Ben is reported (Collings, 1980) to have had a crippling accident, falling in an irrigation ditch, before he died. He also is reported

to have lived for approximately a year after the accident, before his death. James Watkins is reported to have died from a fall off a horse. It is quite likely that had skeletal remains been recovered of either Ben or James, manifestations of these accidents would have been readily apparent. Unfortunately no skeletal material was recovered from the child's grave.

Support for the possibility that burial ten is Ben is based entirely on the story of Frank Collings. He claims that Ben was the first person buried in the cemetery and was interred in the highest grave on the knoll.

There are a number of points that suggest that this grave is not Ben's. The first are discrepancies in Mr. Collings' story. He states that Ben was the first person buried in the cemetery; this would place the date of interment before 1888. In recalling the story of Ben, Mr. Collings indicates that Ben appeared in the Applegate area around the turn of the century. Thus Ben would have died well after 1888 and could not possibly have been the first burial in the cemetery.

A second point arguing against burial ten being Ben revolves around the lack of knowledge of Ben and Mrs. Grace Buck's (personal communication, 1980) contention that Ben never existed. If Ben appeared, lived and died in the Applegate Valley, as Mr. Collings claims, it would be expected that Ben would be remembered in the folklore of the area. This is especially true when it is considering that Mr. Collings himself probably had to hear the story of Ben from some other person in the first place. This is based on the knowledge that he would have been only a small child or possibly not even born when Ben appeared in the area and died. Coupled with Grace Buck's contention that Ben is a "daydream"

of Mr. Collings, this throws doubt on the actual existence of Ben.

The care that was given to burial ten prior to interment also suggests that this is not the grave of an unknown orphan. Two features are noted in this regard: First the burial container was a coffin, i.e., a six-sided box, rather than a simple four-sided box or casket. The making of a coffin requires more skill and time than that of a casket and was probably made by a cabinet maker or undertaker. Second was the presence of two silver half dollars placed in the coffin on either side of the head. Both of these features indicate more care and concern for the deceased than would be expected in the case of an unknown orphan and in turn lend support to the other possible identification, i.e., that this burial is James Watkins, a child of known residents of the area.

As previouly noted, the location of James Watkins' grave is not known. The identification of burial ten as James Watkins is based solely on circumstantial evidence and the already stated contention that this is not the grave of Ben.

If the child's grave, burial ten, is assumed to be James rather than Ben the obvious contradiction with Mr. Collings' story must be explained. As has already been shown the story and existence of Ben must be questioned; so too is there some question of Mr. Collings' recollection of James' grave. No grave was located that could be identified as James Watkins at the location where Mr. Collings indicated James Watkins was buried.

There is also a similarity in Mr. Collings' stories of Ben and James. He states that James was buried close to the Applegate ditch. At the Collings Cemetery this would place James high on the knoll, in virtually the same location as Ben is reported to be buried. In

addition James is known to have died as a result of an accidental fall from a horse, while Ben is reported to have had a crippling accident subsquent to his death. Finally Ben is reported to be the first burial in the cemetery. If in fact James is burial ten then he would be the first burial in the cemetery.

The similarity of these situations and the lack of supporting documentation or archeological evidence suggests that Mr. Collings' accounts of Ben and James are in error. The reliability of his recall in this particular case must be questioned. The problems of relating past events from memory in old age, e.g., remembering names and dates correctly, is well known and documented (Barbizet, 1970;96 and Craik, 1977:400 402, 409-410). The possibility exists, therefore, that his recollection of the above events is not entirely accurate although they may, in fact, be based on actual occurrences.

If burial ten is assumed to be James a second point must also be addressed; this concerns why James was not buried behind the Watkins' homestead. Two explanations can be forwarded. First it is not entirely clear or known when the Watkins' homestead was built. The possibility exists that the site was not yet settled. Mark Watkins, James' father, did not file a homestead application for the site until September 7 1891 (Jackson County Deed Record, vol. 23:358), a full five years after James is reported to have died. Burial of James at the site of the Collings Cemetery would have been a logical choice if the Watkins family was not yet permenantly settled. The land on which the Collings Cemetery is located was owned at the time of James' death by Edward Langley, James' grandfather, and thus a filial relationship existed such that James could be buried on family land (Jackson County Deed Record vol. 43:591).

The second explanation assumes that the site was occupied but the family did not want to bury James so close to the house. In this case it should be noted that James was the first Watkins' child to die, thus, suggesting that grief might be a motivating factor. As with the first possibility mentioned, burial at the site of the Collings Cemetery would have been a logical alternative. This would have would have been close enough to the Watkins' home to allow visits to the grave but far enough away not to be a constant reminder of James' death.

In summary the evidence for the identification of burial ten as James Watkins is based on the disinterment contract that lists a James as being buried in the cemetery, the discounting of the possibilty that this burial is Ben, the similarity of Mr. Collings' stories of Ben and James, and the attention that was given to the deceased prior to burial.

The identification of Bessie Langley was the easiest to make. Only one adult female was reported to be buried in the Collings Cemetery. The identification was accomplished utilizing the data derived from the skeletal analysis. Burial one exhibited a number of traits that indicated it was female. These included the breadth of the sciatic notch, the overall gracile appearance of the post-cranial members compared with the rest of the remains, and the estimation of short stature. This identification was substantiated by a number of non-osteological indicators, among which were the presence of facial hair on the mandible of burial eleven and traditional male clothing in burials four, five, seven, and eleven. In addition, coffin accessories recovered from burials five, seven and eleven dated these burials after the reported interment date of Bessie Langley.

With the identification of burial one as Bessie Langley, burials six, eight, and nine as Collings' infants, and burial ten as James Watkins, the possible choices of identification for the remaining six adult males was narrowed to burials two, three, four, five, seven, and eleven.

The first area of focus was on known dates associated with particular burials and a comparison of these with the known dates of death. Accessories recovered from burials five and seven were manufactured by the Western Casket Company of Elgin, Illinois. This company did not enter business until 1903. Thus, Charles Williams who died in 1900 and Thomas Jefferson Fawcett who died in 1893 could not be either of these burials. The determination of a September 3, 1899 date from burial eleven eliminated T. J. Fawcett as a possible identification choice for this burial. The closeness of this date with the date of Charles Williams' death also suggests, although it does not absolutely rule out the possibility, that this burial is not his.

The recovery of seeds in the sacral region of burial four, identified as Rubus discolor, Himalaya Blackberry, (Appendix E) provided a means of effectively eliminating T. J. Fawcett as a possible choice for this burial. It is probable that these were not introduced to Southern Oregon before 1893, thus the identification choices for T. J. Fawcett are narrowed to burials two and three.

The presence of facial hair, recovered from the mandible in burial eleven proved to be useful as a means of narrowing the identification possibilities. In a photograph, circa 1908, of James Terry and Edward Langley, Terry is pictured as clean shaven while Langley is revealed as wearing a beard. Interviews with Grace Buck (1980) and Frank Collings (1980) identified these individuals and confirmed that Langley wore a beard while Terry did not.

In addition, Mr. Collings stated that his father, Freeman Oscar Collings, and Stephen Terry also wore beards. Mrs. Buck was able to confirm that F. O. Collings had a beard but she was unsure about Stephen Terry. With this data James Terry was eliminated as a possible identification choice for burial eleven.

This photograph also provided a means to help rank order the male adults in terms of stature. Both Mrs. Buck and Mr. Collings were able to provide information that aided in the rank ordering.

Because Frank Collings' information was thoroughly questioned in the preceeding discussion of burial ten, the child's grave, the reason should be stated why his information is used in the following stature discussion. First, it should be noted that in the burial ten discussion we were dealing with a time period dating to the time of his birth, which he, therefore, could not know about first hand. It also was noted that his information could very well have had its basis in fact but was simply confused. Secondly, his information, in the cases of the other burials, is corroborated by Grace Buck's testimony. Third, to test both Mr. Collings' and Mrs. Buck's information, they were both asked about the relative stature of the individuals before they were asked to identify the photograph of Langley and Terry. As a result the photograph can not be said to have influenced their accounts. Finally, neither of them were told of the other's stature information. This insured that one was not influenced by the other.

In the photograph Langley is noticeably shorter than James Terry. Both Mr. Collings and Mrs. Buck concurred that James Terry was the larger of the two. He is described by Collings (Medford Mail Tribune, 1978) as a large individual. Both Mrs. Buck and Mr. Collings indicated that James Terry was a little smaller

than his brother Stephen Terry. Freeman Oscar Collings is remembered by his son Frank Collings to be well built but not overly tall. He indicated that his father was at least as big if not a little bigger than Stephen Terry. It is of interest to note that Frank is himself a large individual. With this information it was possible to rank order these individuals relative to each other according to stature. That ordering from smallest to largest is as follows: E. Langley, James Terry, Stephen Terry and Freeman Oscar Collings.

Stature estimations from the skeletal analysis indicated that burial eleven was the shortest male burial while burial two was the largest. Burials four, five and seven, in that order, fall between burials two and eleven. Correlating this information with the informants' testimony and the photograph suggests that Edward J. Langley is probably burial eleven and is definitely not burial two. It also suggests that Freeman Oscar Collings is burial two and if Collings is burial two then Thomas Jefferson Fawcett is burial three. We are left with Charles Williams, James Terry and Stephen Terry as burials four, five, and seven. It has already been shown that Charles Williams can not be burials five or seven; therefore, he must be burial four. Stephen Terry can be assigned to burial five and James Terry to burial seven based on stature estimations.

There are a number of questionable aspects with these identifications. First, for example, there is nothing to indicate one way or the other whether Thomas Jefferson Fawcet should be assigned burial two or three, and Collings could just as easily be burial three. Second, there is nothing to indicate that Charles Williams is not burial two, three, or eleven.

At this point age estimations do provide some useful information that suggests which possible identifications

might be more correct. As noted previously, all the adults except Bessie Langley and Charles Williams, were reported to be of old age, i.e., 70's or 80's. No age is known for Charles Williams and Bessie Langley is reported to have been in her 50's when she died. Burials one and four were estimated to be the youngest burials based on the skeletal analysis. Burial one has already been identified as Bessie Langley. The age of burial four was estimated to be as young as 45 and no older than 65. Thus the remains from burial four appear to be of an individual younger than F. O. Collings, T. J. Fawcett or either of the Terry brothers. It is therefore reasonable to assume that burial four is Charles Williams. because the remains appear to be too young to be the other adults.

To test these identifications a number of identifications were made and tested in light of the known data. For example if Edward Langley were either burial five or seven then either of the Terry brothers or F. O. Collings would have to be burial eleven. This is not possible because they are all taller than Edward Langley and burial eleven is the smallest burial. Therefore Edward Langley can not be burials five or seven.

This procedure confirmed and supported the previous identifications. In summary they are as follows: burial one, Bessie Langley; burial two, F. O. Collings; burial three, T. J. Fawcett; burial four, C. Williams; burial five, Stephen Terry; burials six, eight, and nine, Collings' infants; burial seven, James Terry; burial ten, James Watkins; and burial eleven, Edward Langley.

After these identifications were made, circumstantial sources of data were examined for support or repudiation of the identifications. An examination of these data in general supported the above stated conclusions.

An examination of historical documents and ethnographic information proved useful in illuminating the economic

structure of the community and the propensity of particular individuals towards various occupations. The type of data sought in this case was information that would indicate who had the financial means to afford the fancier coffins and caskets recovered from burials five, seven and eleven.

When asked if any of the individuals in the Collings Cemetery was wealthy, neither Collings (1980) or Buck (1980) remembered anybody as particularly rich. This is not suprising when it is considered that both Mr. Collings and Mrs. Buck were children when they knew these people and they would not have had access to their financial status. At best this indicates that none of the individuals buried at the cemetery displayed any outward manifestations of great wealth.

However other types of information obtained from Mrs. Buck and Mr. Collings are reflective of the financial status of these individuals. Edward Langley is remembered by Mrs. Buck as a business man. In addition to owning a ranch he is reported to have been partners with James Terry, owning a stampmill near the mouth of Squaw Creek (Buck, 1980 and Jackson County Miscellaneous Records vol. D:134). Edward Langley is also known to have sold most if not all his properties before his death. No probate records are on file in the county archives that would have indicated the extent of his holdings when he died but there are numerous entries in the Deed Records of transactions that took place prior to his death. For example, two years before his death he sold one piece of property for a sum of $2,000 (Jackson County Deed Record, vol. 91;213).

When Langley's second wife died in 1888 he is reported to have adopted the Collings family, Freeman Oscar, his wife and their eight children, including Frank, because his house was roomier than theirs. Freeman Oscar Collings

and Langley farmed and mined together until Freeman died in 1905. Following his death, Langley supported the family until his own death in 1913. Before he died he sold his ranch and the land on which the Collings Cemetery is located to the Collings family for a minimal amount of money (Collings, 1980 and Jackson County Deed Record, vol. 68:45, vol. 89:317-318).

In addition to his partnership with Langley, James Terry was also a partner, along with his brother Stephen and two others, in the Carberry Mining Company in 1895 (Jackson County Mining Record, vol. A:517). It appears that in 1906 the company's claims and others were sold to the Phoenix Mining Syndicate for $10,000 (Jackson County Deed Record, vol. 60:299-302). How large James and Stephen Terry's shares were is not known.

The preceeding information suggests that Langley and the Terry brothers all had the means to afford the more elaborate and expensive coffins and caskets. In addition it can be noted that the Terry brothers were bachelors and thus had no immediate family on which to spend their accummulated earnings. This is in marked contrast to Freeman Oscar Collings who had a wife and eight children.

Additional evidence that the identifications are correct is derived from the placement of the graves in the cemetery in terms of time. After the identifications were formulated it was noted that the placement of the graves started at the top of the cemetery and moved downslope through time. When it is considered that the graves were placed in the ground close to one another in fairly neat parallel rows (Figure 3) it is more logical to suggest that they were placed in the ground sequentially through time rather than randomly.

VIII. SUMMARY AND DISCUSSION

The primary emphasis of this study was on the methods used to locate, remove and identify historic, Euro-American burials for reinterment. The project on which this study was based was necessary to insure compliance, by the Army Corps of Engineers, with federal legislation and Army Corps of Engineer regulations. It was carried out as the final phase of the Applegate Lake Archeological Project by a team of Anthropologists under the direction of Dr. David Brauner, from Oregon State University. When the project was complete, two family burial plots had been recovered and identified.

The burials were initially located by noting surface features that distinguished the graves' locations from the surrounding environment. These included one grave marker, slight surface depressions and the unnatural arrangement of large sub angular cobbles. After the sod was removed, the ground was examined for changes in soil color indicative of grave fill. In all 13 burials, 11 at the Collings Cemetery and two at the Watkins Cemetery were located, removed, and identified In addition, one other cultural feature at the Collings Cemetery was excavated but it could not be conclusively determined that it was a burial.

Following the removal of the burials they were analyzed and the identity of each established. A variety of features were examined to make the identifications; these included a correlation between the date of death and limiting dates determined from the burial artifacts, the presence or absence of facial hair, a comparison of the reported stature of the individuals and the estimated skeletal stature and a comparison between the reported age at the time of death and the calculated

skeletal age. Initial identifications were tested against circumstantial data.

In addition to those criteria used in the skeletal identification, other means exist that might be helpful in distinguishing skeletal remains but were not applicable in this particular project. For example, if the population being identified has a wide range of ages, i.e., infant through adulthood, the age estimations calculated from the skeletal remains can be compared with the known ages of death. Over the age of 45, age estimations lose their precision and because all the adults, with one possible exception, were over 45, this method was of little use on this project.

Another method of distinguishing individuals is possible if known pathologies are reported for any particular indidual. In many cases such pathologies will manifest themselves in the skeletal remains. It was hoped to employ this method in the case of burial ten; however, the lack of skeletal materials precluded its use.

The use of non-metric characters has been discussed as a means of distinguishing skeletal populations (Berry and Berry, 1962:361-379). They showed that non-metric characters occur in different frequencies in different populations. Thus this method is more applicable to distinguish population groups from one another rather than individauls. It also has not been clearly demonstrated whether these traits are a result of genetic or environmental factors or a combination of both.

The degree of preservation is another area where it may be possible to distinguish how long a particular burial has been in the ground relative to other burials, if it is presumed that the longer a burial is in the ground the greater the degree of decay. Identification utilizing preservation assumes that all factors such as

soil chemistry, depth below ground surface, burial preparation, including embalming and type of container, as well as variable wetting and drying of the burials are all equal and that time in ground is the primary variable. An examination of preservation factors at the Collings Cemetery indicated that time in ground was only one of the factors influencing preservation.

Preservation at the Collings Cemetery was examined to determine if a major factor in the deterioration of the graves could be identified. The child and adult burials were first rank ordered in terms of varying degrees of preservation (Table 14). This ordering was based on an obervation of the amount of skeletal material that preserved. The order from best to worst is as follows: burial two, burial four, burial seven, burial five, burial one, burial eleven, burial ten and burial three. In the case of burials three and ten, where no skeletal remains were recovered the ordering was based on the overall degree of preservation of the remaining materials. Wood fragments and nails were still present in burial ten while only a dark organic stain remained of burial three. Thus burial ten was ranked ahead of burial three.

Following the rank ordering a number of factors were then examined to determine if any correlations between these and the degree of preservation could be identified. The factors examined were horizontal location within the site, vertical location in the site, i.e., depth below the ground surface, time in ground and the differences in burial containers. Utilizing Spearmans' rank order correlation, preservation was examined in terms of vertical location and time in ground. In order to carry out this statistical test it is necessary to rank order both factors being analyzed. The rankings are summarized in Table 14. Following the ranking of the factors to be examined, the orderings are subjected

TABLE 14. SUMMARY OF RANK ORDERING IN TERMS OF DEGREE OF PRESERVATION, VERTICAL LOCATION, AND TIME IN GROUND

Burial number	Degree of Preservation	Vertical Location	Time in Ground
1	5	5	2
2	1	1	5
3	8	8	3
4	2	7	4
5	4	3	6
7	3	4	8
10	7	2	1
11	6	6	7

A 1 equals: best preservation, deepest burial and longest time in ground while an 8 is the worst preservation, shallowest burial and least time in ground.

to a mathematical examination and a correlation factor from -1 to +1 is determined. A 100% correlation is either -1 or +1, while no correlation would be 0. The rank order correlation in terms of time in ground was -.24 and for depth in ground was .38. This suggests neither of these variables appear to be a major factor in the preservation of the burials, yet both have some effect.

The time in ground rank ordering is dubious at best, since it presumes that the identification of the individual burials is correct, hence the date of entry in the ground is correct. Though interesting, the correlation exercise can not be considered conclusive.

Examination of the other factors, horizontal location within the site and burial container, was done informally This evaluation revealed that the presence of a grave liner may have aided preservation. Those burials without grave liners were noted to be more deteriorated. However, the most elaborate grave liner was noted in burial five, but burial five ranked only fourth in terms of preservation. Preservation as a function of the horizontal location in the site showed a more or less random pattern and thus does not appear to have been a factor in preservation.

One other factor of interest was that burials three and ten, being the least preserved had an element of commonality. The grave fill of these burials was similar in terms of color and composition but distinct from that of the other burials. This indicates that soil composition may be a factor affecting preservation and the rate of deterioration.

The data collected to identify the remains was also useful in the formation of a data base from which comparative studies of skeletal remains may be performed. In this regard it was of interest to note, in addition to the previously mentioned anomolies, the differences between those individuals of Euro-American descent and

those of Native American descent. In this case it was observed that burial one, Bessie Langley, a Native American was post-cranially quite gracile but cranially was fairly robust, particularly in the occipital region. This is in marked contrast to the other burials, of Euro-American descent, that were post-cranially quite robust and cranially very gracile. This observation is in line with previous observations of these two groups (Hall, personal communication, 1981).

Another area that can be addressed is the general health of the community as reflected by the individuals recovered from the Collings Cemetery. No evidence of any major diseases, traumas or pathologies were noted. Degenerative changes, common to old age, were observed in burials two and five. In addition to this arthritic lipping, alveolar resorption was observed in most of the adult burials. The high percentage of infant burials suggests that stillbirths or infant death were not uncommon although the small sample limits reliability of any of these conclusions.

Historic data was also recovered that was not only pertinent to the burial identifications but was also important in the understanding of early pioneer lifeways. Historically mining and farming were the principal occupations of the Upper Applegate Area (La Lande, 1980:92). Information derived from living informants (Tungate, Dale, E. Edwards, C. Edwards, Collings and Buck, 1980) and county records substantiated this general conclusion. On the more personal level, details of Edward Langley's, James and Stephen Terry's and Freeman Oscar Collings' lives, business interests and occupations were learned.

Jackson County Mining Records (Vols. 1-15) indicated that James Terry, Stephen Terry and Edwards Langley spent a great deal of time mining. In contrast Freeman Oscar

Collings engaged in very little mining activity. Only two entries are recorded in the mining records for him (Jackson County Mining Records Vols. 2:493 and 3:319).

These individuals also had a number of skills that were useful to the community. While confirming Mr. Collings' story that the Terry Brothers arrived in the Applegate area after living in the Virginia City, Nevada, area, it was learned that Stephen Terry was also a butcher and founding member of the Neveda House Guard during the Civil War (Kelly, 1862:211, Silver City Home Guard roster, 1862, Letter to the Adjutant General, Nevada Militia, October 4, 1862).

The organizing skills of Edward Langley and Freeman Oscar Collings were utilized when these two, along with Mark Watkins, organized and built the first community school and served as its first board of directors (Nesheim, 1976).

Information about funerary practices and the Upper Applegate area's economic link to the rest of the country were also obtained. A variety of burial containers were utilized by the community, from simple handmade infant caskets to very fancy and elaborate coffins/caskets. The coffin/caskets recovered from burials five, seven and eleven were probably not manufactured or assembled locally. Ornaments on the coffin/caskets from these burials were manufactured in Illinois and distributed in the midwest area only until after World War II. These ornaments were probably sold to a midwestern manufacturer who inturn shipped the finished product to Southern Oregon (Ellis, 1980).

Both historical and archeological data support this hypothesis. Burial containers such as those recovered from burials five, seven and eleven were readily available through mail order catalogs by 1880. Such catalogs carried

as many as 100 different styles of caskets and coffins, embracing materials such as wood, metal, cloth and glass and combinations of these materials. (Habenstein and Wamers, 1977:95).

The decorative fasteners recovered from burials five and seven (Figure 7) and the grave liner recovered from burial five (Figure 28) support the contention that these were not locally manufactured items. According to Larry Whitaker (personal communication, 1981) and Gary Lundberg (personal communication, 1981) of Lundberg's funeral home in Grants Pass, Oregon, these fasteners were designed to railroad specifications to help insure compliance with railroad regulations. These regulations prohibited the stacking of coffins/caskets and this type of fastener discouraged stacking.

When shown the artist's reconstruction of the grave liner from burial five (Figure 28), Mr. Lundberg indicated that this type of container was frequently used to ship caskets. He also indicated that the construction details matched exactly with containers he still used. These shipping boxes were usually made of cedar and the grave liner recovered was made of cedar.

Another point of interest was the material used in the construction of the coffins and caskets. It was noted that the fancier containers from burials five, seven and eleven were all made of spruce and the simpler coffins and caskets were all made of pine.

The foregoing data amply demonstrates the use and advantage of anthropological methodologies in the recovery of Euro-American burials. While being extremely qualified to locate, recover and identify burials, this approach also facilitates recovery of valuable historical and behavioral data necessary for the recontruction of past cultures.

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APPENDIX A

Hillcrest Memorial Park
2201 NORTH PHOENIX ROAD
MEDFORD, OREGON 97501
TELEPHONE 773-6162

OREGON STATE UNIVERSITY
DEPARTMENT OF ANTHROPOLOGY
CORVALLIS, OREGON 97331

JUNE 12, 1980

Gentlemen:

On June 5, 1980, by request of Mr. Dave Brauner, the undersigned was at the Upper Applegate Dam, where the disinterment preparations were in progress at the site of the Collings' family burial plot. The workers at the site had completed defining the outline of the individual graves. According to Mr. Bruaner, the actual disinterment would take place the following week.

This writer was again present on June 11, 1980, to observe the procedure of unearthing the remains. Under the direction of Mr. Brauner, the team of Anthropology students were meticulously digging the earth from the graves.

In view of the detailed preparations, coupled with the cooporation and authorization of the deceaseds' heirs, the disinterment appears to be moving along in an orderly and lawful manner.

Respectfully yours.

Signature redacted for privacy.

Jack L. Goodell
Funeral Director
HILLCREST MEMORIAL PARK & MORTUARY, INC.
2201 N. PHOENIX ROAD
MEDFORD, OREGON 97501
(503) 773-6162

JLG;pj

APPENDIX B

Department of Anthropology
Oregon State University
Corvallis, Oregon 97331 (503) 754-4515

3 June 1980

Dear

The Department Anthropology, Oregon State University has been authorized by the Portland District, Army Corps of Engineers under contract DACW57-79-C-0080 (Mod. P00003) to exhume the remains of eight individuals known to be buried in the Collings Cemetary. We are also authorized to search for and recover two Watkins children burials at a site south of the Collings Cemetary. A list of the individuals buried in the Collings Cemetary is presented below. The date on which we plan to remove the remains follows the name.

FREEMAN OSCAR COLLINGS	June 10
CHARLES WILLIAMS	June 10
JAMES -	June 10
EDWARD LANGLEY	June 11
BESSIE LANGLEY	June 11
STEVE TERRY	June 6
JAMES TERRY	June 6
THOMAS JEFFERSON FAUCETT	June 6

The search for the two Watkins children's graves will begin Tuesday June 10, 1980.

You should have been contacted by me or Chris Jenkins, my field assistant, prior to the receipt of this letter concerning the above schedule.

page 2 of 2
3 June 1980

As noted in our phone conversation, our schedule could be subject to a one or two day delay. If you wish to be present during disinterment of your relative(s), you might call the Applegate Lake project office (503) 899-1765 for updated scheduling information. Also, if you have any questions about the grave removal operation, do not hesitate to call.

Sincerely,

Signature redacted for privacy.

DR. DAVID BRAUNER
ARCHAEOLOGIST
OREGON STATE UNIVERSITY

scc

LETTERS SENT JUNE 3, 1980

RE: DATES OF DISINTERMENT

Arduth Edmondson
Fredenburg Road
Butte Falls, OR 97522

Clarence G. Edwards
3009 Camp Baker Road
Phoenix OR 97535

Guy Watkins
12780 Applegate Road
Jacksonville, OR 97530

Geraldine Dale
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Central Point, OR 97205

Edgar A. Edwards
c/o EADS FURNITURE
853 Riverside
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Doraland Coffman
430 Laurel
Butte Falls, OR 97522

Dorothy Bradstreet
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Roseburg, OR 97470

Mary Tungate
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Milwaukie, OR 97222

Orville Stephenson
P.O. Box 132
Butte Falls, OR 97522

Frank R. Weingwright
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Grants Pass, OR 97526

Helen V. Murray
220 W. Hawthorne
Eureka, CA 95501

George F. Collings
East "C" Street
Jacksonville, OR 97530

APPENDIX C

Date 18 June 1980

Observer Jenkins

Skeletal data form, Oregon State University Osteology Laboratory

Site (place) Applegate Site number 35 JA 64

Burial number 1

Sex M(F)I Basis of estimate Gracile, weak mastoids, short stature and broad sciatic notch

Age 50+ Basis of estimate loss of teeth, resorption of mandible, degree of suture closure and historic records.

Stature estimate 4'9 3/4"-4'10 1/2" Formula and bones used in making estimate(s)

From Brothwell, 1965:102 Tibia, 2.90 Tib+61.53 Radius, 4.74 Rad+54.93

Notes and other observations

Scapula-Articulation of spine to body and fragments of glenoid. Both right and left.

Humerus-Both right and left are missing proximal end, diaphysis very fragmentary, distal ends fragmentary.

Radius-External surfaces well deteriorated.

Ulna-External surfaces deteriorated, distal end missing on both right and left.

Tibia-Left is intact but well deteriorated on proximal end, anterior surface is missing.

Fibula-Proximal ends both right and left are missing.

Tarsals, Talus, Calcaneus all exhibit external deterioration.

Innominate-1 small symphyseal face fragment side unknown. Left side inferior ramus of ischium and pubis are present but fragmentary, right side inferior ramus of ischium is present but fragmentary, acetabulum is almost complete on both sides with margins bordering the fossa being fragmentary, auricular area is fragmentary on the posterior margin.

Femur-Greater trochanter is missing on the right as is part of the surface of the head. Left, greater and lessor trochanter missing, head detached and fragmentary.

site number 35 JA 64

burial number 1

Cranial bone enumberation; dental attributes

✓ present; F frg.; # missing; P path; A anomalous

Cranium:	R	L
parietal.....	F	F
temporal.....	F	F
nasals.....	#	#
maxilla.....	#	#
malar.....	#	#
palatine.....	#	#
mandible-body...	F	F
ramus.....	F	F
condyles.....	#	#
frontal.....	F	F
occipital.....	F	F
sphenoid.....	#	#

Evaluation of individual (e.g. Pathology, etc.

Notes:

Post-mortem deformation prevented accurate reconstruction of skull.

Ramus-only gonial portion present.

Mandible-deterioration of molar and premolar areas both right and left and in the canine and incisor region. Root cavity is present for right canine and incisor #2.

Pronounced metal tubercle.

DENTAL RECORD

	M3	M2	M1	PM2	PM1	C	LI	CI	CI	LI	C	PM1	PM2	M1	M2	M3
	L								R							
maxilla	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
mandible	BR	BR	BR	BR	BR	#	#	#	#	x	x	BR	BR	BR	BR	BR

✓ present
bone missing
x missing postmortem
- missing antemortem
S shoveling
A abscess
I impaction
CR crowding
BR bone resorption
NE not erupted

NFE not fully erupted
OC occlusal caries
MC caries mesial
CD caries distal
CL caries lingual
BL caries buccal
d deciduous (baby tooth)
1-8 attrition level (see chart in Hall and German, 1975, Svesis)

(Note other features with footnote)

3

site number 35 JA 64

burial number 1

Cranial metrics; take left and right if possible; indicate side

Cranium

Maximum length	x
Maximum breadth	x
Basion-bregma	x
Minimum frontal breadth	x
Bizygomatic	x
Nasal height	x
Nasal breadth	x
Left orbital breadth	x
Left orbital height	x
Right orbital breadth	x
Right orbital height	x
Biorbital breadth	x
Basion-porion	x
Porion-nasion	x
Porion-prosthion	x
Basion-nasion	x
Maximum frontal breadth	x
Basion-prosthion	x
Nasion-prosthion	x
Palate breadth (external)	x
Foramen magnum length	x

Mandible

Symphysial height	x
Diameter bigonial	8.58 cm
Diameter bicondylar	x
Height of ascending ramus	x
Minimum breadth of ramus	x
*Gonial angle	125°
Total mandibular length	x

Indices

Cranial index	x
Nasal index	x

Observations

metopic suture	yes	(no)	indeterminate
deformation	yes	(no)	indeterminate
sutural bones:			
sagittal	yes	(no)	indeterminate
coronal	yes	(no)	indeterminate
bregma	yes	(no)	indeterminate
Lambdoidal	yes	(no)	indeterminate
inca bone	(yes)	no	indeterminate

Other: *Due to fragmentary condition this must be taken with a grain of salt.

Suture Closure:
Sagital closed both ecto-and endo-cranially Coronal present both ecto-and endo-cranially, some fusion endo-cranially. Lambdoidal present both ecto- and endo-cranially; however some fusion has begun to take place in the area near lambda. A transverse lambdoidal suture appears to be present indicating an Inca bone. Squamosal suture only partially available on left side, does not look fused, no suture on right side.

Temporal-occipital: left side exhibits some fusion endo-cranially.

4

site number 35 JA 64

burial number 1

Post-cranial bone enumeration

✓ Present; F frg.; # missing; P path; A anomalous

* vertebrae	1	2	3	4	5	6	7	8	9	10	11	12
C	F	F										
T												
L												
S	F	#	#	#	#	Auricular surface R # L #						
cox.	#	#	#	#								

*Vertebrae: Also see Page 6 Excluding the Atlas and Axis there are 21 fragments primarily lumbar and cervical

Sacrum: Present are the articulating processes joined with the median sacral crest

Innominate:	R	L
Pubic	F	#
Ischium	F	F
Ilium	#	#
Auricular	F	F
Acetabulum	F	F
Humerus:	#	#
Prox	F	F
Distal	F	F
Diaphysis		
Radius:		
Prox	F	F
Distal	V	V
Diaphysis	F	V
Ulna:		
Prox	F	F
Distal	V	V
Diaphysis	#	#
Scapula:		
Glenoid	F	F
Spine	F	F
Corocoid	#	#
Acromion	#	#

Clavicle:	R	L
Medial end		
Lateral end		
Diaphysis		
Ribs:	#	#
Sternum:	#	
Manubrium		
Body		
Xiphoid		
Femur:		
Prox	F	F
Distal	#	#
Diaphysis	V	V
Patella:	F	#
Tibia:		
Prox	F	F
Distal	#	#
Diaphysis	V	V
Fibula:		
Prox	#	#
Distal	V	#
Diaphysis	V	V

	R	L
Talus:	F	F
Calcaneus:	F	F
Tarsals:	See Page 6	
Metatarsals:	See Page 6	
Carpals:	See Page 6	
Metacarpals:	See Page 6	
Phalanges:	See Page 6	

5

site number 35 JA 64

burial number 1

Post-cranial metrics

Humerus

	L	R
maximum morphological length	X	X
maximum diameter mid-shaft	X	X
minimum diameter mid-shaft	X	X
minimum circumference	X	X
maximum diameter head	X	X
physiological length	X	X

Clavicle

maximum length	X	X
external breadth	X	X
internal breadth	X	X

Femur *

maximum morphological length	X	X
in-position length (same as bicondylar length)	X	X
ant-post. diameter mid-shaft	2.79	2.79
transverse diam. mid-shaft	2.63	2.62
circumf. mid-shaft	8.5	8.5
maximum diameter head	X	X

Tibia *See Page 6

maximum morphological length (exclude tibial spines)	31.5	X
ant-post. diam. mid-shaft	2.99	2.96
circumf. mid-shaft	8.2	8.3
transverse diam. mid-shaft	2.39	2.32

Sacrum

maximum length	X
maximum breadth	X

Radius

	L	R
maximum length	X	X
physiological length	X	20.3
minimum circumf.	X	X
transverse diam. mid-shaft	X	1.23
ant-post. diam. mid-shaft	X	1.70

Ulna *See Page 6

maximum length	X	X
minimum circumf.	X	X
physiological length	X	X
ant-post. diam. mid-shaft	X	X
transverse diam. mid-shaft	X	X

Scapula

maximum breadth	X	X
maximum height	X	X

Innominate

coxal height	X	X
iliac breadth	X	X
cotylo-sciatic breadth	3.68	3.66

Fibula

maximum length	X	X

(for all measurements except the scapula, refer to Olivier, 1969, Practical Anthropology; for the scapula, refer to Montagu, 1960, A Handbook of Anthropometry.)

(Put x if it is not possible to obtain measurement.)

* Femur-Mid-shaft approximated.

* Tibia- Right tibia mid-shaft approximated.

6

site number 35 JA 64

burial number 1

Additional Notes

Tarsals:

L		R
F	Cuboideum	F
F	Navicular	F
#	Os Cuneiform 1	#
F	Os Cuneiform 2	F
F	Os Cuneiform 3	F

Metatarsals:

L		R
F	1	F
V	2	F
V	3	#
F	4	V
F	5	V

Carpals:

L		R
F	Hamate	F
#	Capitate	#
#	Greater Multangular	#
#	Lesser Multangular	#
F	Navicular	F
F	Lunate	F
#	Pisiform	#
#	Triquetrum	F

Plus 4 unidentifiable fragments

Metacarpals:

L		R
F	1	F #R
F	2	F
F	3	F
F	4	F
F	5	F

Phalanges:

L carpal 4 R carpal 7

L tarsal R tarsal

(2 total)

Vertebrae:

Atlas, Posterior arch, Posterior portions of superior articulating facet and portions of the inferior articulating facet are all present.

Axis, Present are the dens and right superior articulating facet.

Tibia, Anterior-posterior dia. at Nutrient Foramen Left 3.22 Right X
Transverse dia. at Nutrient Foramen Left 2.72 Right X

Ulna, Anterior-posterior dia. at inferior margin of Radial notch L 2.34 R 2.34
Transverse dia. at inferior margin of Radial notch L X R 1.36

Site Number 35JA64
Burial Number 1

Minor morphological traits in the human skull-----non-metric trait listing developed by Berry and Berry (1967, J. Anat. 101:361-379)

1. Highest nuchal line present: yes (no) NA
2. Ossicle at the lambda: (yes) no NA
3. Lambdoidal suture ossicle present: none 1 more____ (NA)
4. Parietal foramen present: right only left only (both) none NA
5. Bregmatic bone present: yes (no) NA
6. Metopism: yes (no) NA
7. Coronal suture ossicle present: none 1 more 3 NA
8. Epipteric bone present: right only left only both none (NA)
9. Fronto-temporary articulation: right only left only both neither (NA)
10. Parietal notch bone present: right only left only both neither (NA)
11. Ossicle at asterion: right only left only both neither (NA)
12. Auditory torus present: right only left only both (neither) NA
13. Foramen of Haschke present: right only left only (both) neither NA
14. Mastoid foramen ex-sutural: right only left only (both) neither NA
15. Mastoid foramen absent: right only left only both (neither) NA
16. Posterior condylar canal patent: right only left only both neither (NA)
17. Condylar facet double: right only left only both neither (NA)
18. Precondylar tubercle present: right left both central neither (NA)
19. Anterior condylar canal double: right left both neither (NA)
20. Foramen ovale incomplete: right left both neither (NA)
21. Foramen spinosum open: right left both neither (NA)
22. Accessory lesser palatine foramen present: right left both neither (NA)
23. Palatine torum present: yes no (NA)
24. Maxillary torus present: right left both neither (NA)
25. Zygomatico-facial foramen: right left both neither (NA)
26. Supraorbital foramen complete: (right) (left) both neither (NA)
27. Frontal foramen present: right left both (neither) NA
28. Anterior ethmoid foramen exsutural: right left both neither (NA)
29. Posterior ethmoid foramen absent: right left both neither (NA)
30. Accessory infraorbital foramen present: right left both neither (NA)

Date 12 June 1980

Observer Jenkins/Hall

Skeletal data form, Oregon State University Osteology Laboratory

Site (place) Applegate Site number 35 JA 64

Burial number 2

Sex (M) F I Basis of estimate Very robust specimen, sciatic notch medium to narrow, pre-auricular groove absent, historic records.

Age 60+ Basis of estimate loss and condition of teeth, resorption of mandible, degree of sutural closure, highly eroded pubic symphysis.

Stature estimate 5'8"-5'9" Formula and bones used in making estimate(s)

In ground measurements, Brothwell, 1965:102. Tibia, 2.42 Tib+81.93 Radius, 3.79 Rad+79.42.

Notes and other observations

Scapula-Vertebral margin fragmented.
Femur-Heads present but fragmentary at neck and epiphysis.
Tibia-Right proximal anterior fragmented.
Clavicle-Arthritic lipping on sternal extremities.
Tarsals have damage to external surface (deterioration).
Joints robust but not diseased.
Alveolus of maxilla is missing; at the right canine position on the maxilla there is a conical shaped bone bump.
Mandible alveolus present with some root cavities indicated, some breakage,
Frontal midsection missing and fragmented.
Occipital basal part fragmented/missing, squalmal area intact.
Spheoid-Body mostly intact, portions of right and left greater wings present.
2nd molar of left maxilla has healthy occlusal surface, retracted gum line calculus present, enlarged bulbous roots.

2

site number 35 JA 64

burial number 2

Cranial bone enumberation; dental attributes

✓ present; F frg.; # missing; P path; A anomalous

Cranium:	R	L
parietal.....	V	F
temporal.....	V	V
nasals.....	F	F
maxilla.....	F/A	F
malar.....	V	V
palatine.....	#	#
mandible-body...	V	V
ramus.....	V	V
condyles.....	F	F
frontal.....	V	V
occipital.....	F	F
sphenoid.....	F	F

Evaluation of individual (e.g. Pathology, etc.

Teeth: Incisors 3 mandibular; these are narrow.

Canines-2, probably mandibular.

Premolars-2 probably mandibular, one has exposed pulp cavity, enamel missing. The other exhibits post-mortem breakage.

None of these were found in the alveolus they all are well worn except the molar (M2).

There are a number of unidentifiable DENTAL RECORD fragments.

							L		R							
	M3	M2	M1	PM2	PM1	C	LI	CI	CI	LI	C	PM1	PM2	M1	M2	M3
maxilla		V														
mandible	BR	BR	BR											BR	BR	BR

✓ present
bone missing
x missing postmortem
- missing antemortem
S shoveling
A abscess
I impaction
CR crowding
BR bone resorption
NE not erupted

NFE not fully erupted
OC occlusal caries
MC caries mesial
CD caries distal
CL caries lingual
BL caries buccal
d deciduous (baby tooth)
1-8 attrition level (see chart in Hall and German, 1975, Syesis)

(Note other features with footnote)

All measurements in cm unless otherwise noted.

3

site number 35 JA 64

burial number 2

Cranial metrics; take left and right if possible; indicate side

Cranium

Maximum length	X
Maximum breadth	X
Basion-bregma	X
Minimum frontal breadth	X
Bizygomatic	X
Nasal height	X
Nasal breadth	X
Left orbital breadth	X
Left orbital height	X
Right orbital breadth	X
Right orbital height	X
Biorbital breadth	X
Basion-porion	X
Porion-nasion	X
Porion-prosthion	X
Basion-nasion	X
Maximum frontal breadth	X
Basion-prosthion	X
Nasion-prosthion	X
Palate breadth (external)	X
Foramen magnum length	X

* **Mandible**

Symphysial height	X
Diameter bigonial	10.09
Diameter bicondylar	over 12.0
Height of ascending ramus	L 6.0 R 6.1
Minimum breadth of ramus	L 2.68 R 2.74
Gonial angle	121°
Total mandibular length	9.8

Indices

Cranial index	X
Nasal index	X

Observations

metopic suture	yes	(no)	indeterminate
deformation	yes	(no)	indeterminate
sutural bones:			
sagittal	yes	(no)	indeterminate
coronal	yes	(no)	indeterminate
bregma	yes	(no)	indeterminate
Lambdoidal	yes	(no)	indeterminate
inca bone	yes	(no)	indeterminate

Other:

*Condyloid processes are fragmentary. As a result, total length and height of ramus are subject to error.

Suture closure:
Sagittal-closed endo-cranially, some evidence of ecto-cranial closure along posterior section.
Coronal-closed endo-cranially only.
Lambdoidal-closed endo-cranially, right side present ecto-cranially. Left side closed ecto-cranially.
Squamosal-suture present on right side.
Temporal-occipital suture present right side.
Spheno-frontal closed endo-cranially, partly discernable ecto-cranially near junction with coronal.
Spheno-parietal suture open.

4

site number 35 JA 64

burial number 2

Post-cranial bone enumeration

✓ Present; F frg.; # missing; P path; A anomalous

vertebrae	1	2	3	4	5	6	7	8	9	10	11	12
C	F	F	F	F	F	F	F					
T	F	F	F	F	F	F	F	F	F	F	F	F
L	F	F	F	F	F							
S	F	F	V	V	V	Auricular surface R F L F						
cox.	V	V	V	#								

Innominate:	R	L
Pubic	F	F
Ischium	V	V
Ilium	V	V
Auricular	V	V
Acetabulum	V	V
Humerus:		
Prox.	F	F
Distal	V	V
Diaphysis	V	V
Radius:		
Prox.	F	F
Distal	V	V
Diaphysis	V	F
Ulna:		
Prox.	V	F
Distal	V	#
Diaphysis	V	V
Scapula:		
Glenoid	V	V
Spine	V	V
Corocoid	V	#
Acromion	V	V

Clavicle:	R	L
Medial end	#	F
Lateral end	#	F
Diaphysis	V	F
Ribs: (24)	F/V	F/V
Sternum:		
Manubrium	V	
Body	F	
Xiphoid	F	
Femur:		
Prox.	V	V
Distal	V	F
Diaphysis	V	V
Patella:	V	V
Tibia:		
Prox.	V	F
Distal	V	V
Diaphysis	V	V
Fibula:		
Prox.	#	#
Distal	V	V
Diaphysis	V	V

	L	R
Talus:	V	V
Calcaneus:	V	V

Tarsals: See Page 6

Metatarsals: See Page 6

Carpals: See Page 6

Metacarpals: See Page 6

Phalanges: See Page 6

5

site number 35 JA 64

burial number 2

Post-cranial metrics

Humerus	L	R
maximum morphological length	34.0	34.2
maximum diameter mid-shaft	2.49	2.59
minimum diameter mid-shaft	2.23	2.35
minimum circumference	7.2	7.8
maximum diameter head	X	4.80
physiological length	33.6	33.8

Clavicle		
maximum length	X	14.9
external breadth	X	2.82
internal breadth	X	2.46

Femur See Page 6

maximum morphological length	48.9	48.8
in-position length (same as bicondylar length)	48.5	48.4
ant-post. diameter mid-shaft	3.44	3.36
transverse diam. mid-shaft	3.11	2.90
circumf. mid-shaft	10.20	10.27
maximum diameter head	5.03	X

Tibia See Page 6

maximum morphological length (exclude tibial spines)	39.9	39.4
ant-post. diam. mid-shaft	3.85	3.76
circumf. mid-shaft	9.81	9.77
transverse diam. mid-shaft	2.23	2.53

Sacrum See Page 6

maximum length	12.9
maximum breadth	12.0

Radius	L	R
maximum length	X	26.9
physiological length	X	26.1
minimum circumf.	5.04	5.35
transverse diam. mid-shaft	1.33	1.40
ant-post. diam. mid-shaft	1.67	1.71

Ulna See Page 6

maximum length	X	28.7
minimum circumf.	X	4.4
physiological length	X	26.0
ant-post. diam. mid-shaft	X	2.2
transverse diam. mid-shaft	X	1.5

Scapula See Page 6

maximum breadth	10.7	10.5
maximum height	X	18.5

Innominate See Page 6

coxal height	23.3	23.5
iliac breadth	16.2	16.8
cotylo-sciatic breadth	5.18	4.82

Fibula

maximum length	X	X

(for all measurements except the scapula, refer to Olivier, 1969, Practical Anthropology; for the scapula, refer to Montagu, 1960, A Handbook of Anthropometry.)

(Put x if it is not possible to obtain measurement.)

6

site number 35 JA 64

burial number 2

Additional Notes

Tarsals:

L		R
V	Cuboideum	V
V	Navicular	V
V	Os Cuneiform 1	V
V	Os Cuneiform 2	V
V	Os Cuneiform 3	V

Metatarsals:

L		R
V	1	V
V	2	V
V	3	V
V	4	V
V	5	V

Carpals:

L		R
V	Hamate	V
V	Capitate	V
V	Greater Multangular	V
V	Lesser Multangular	V
V	Navicular	V
V	Lunate	V
V	Pisiform	V
V	Triquetrum	V

Metacarpals:

L		R
V	1	V
V	2	V
V	3	V
V	4	V
V	5	V

Phalanges:

L carpal 11 R carpal 12

L tarsal 5 R tarsal 1

Femur: Left femur distal end held in place for measurements.

Tibia: Anterior-posterior dia. at nutrient foramen Left 4.03 Right 4.00
Transverse dia. at nutrient foramen Left 2.48 Right 2.46

Sacrum: Breadth determinded by measuring left half and then doubling this.
Breadth of body at sacral #1 7.2.

Scapula: Right side, due to fragmentary nature of bone inferior angle position may be in error.

Innominate: Left breadth measurement probably skewed due to deterioration of the Iliac crest.

Site Number 35JA64

Dental Attrition Record **Burial No.2**

	M3	M2	M1	PM2	PM1	C	LI (L)	CI (L)	CI (R)	LI (R)	C	PM1	PM2	M1	M2	M3
maxilla		3														
mandible																

*[1]
Incisors: 4,5,5
Canines: 5,6
Premolars: 6,8

Attrition Level	Incisor and Canine	Premolar	Molar
1	Unworn	Unworn	Unworn
2	Wear facets minimal; no observable dentine	Wear facets present; no observable dentine	Wear facets; no observable dentine
2.5	Small dentine patches visible; cusp pattern not obliterated	Small dentine patches; cusp pattern not obliterated	Small dentine patches; cusp pattern not obliterated
3	Cusp pattern obliterated; dentine patches present	Cusp pattern partially or completely obliterated; small dentine patches	Cusp pattern partially or completely obliterated small dentine patches
4	Dentine patch (minimal)	Two or more dentine patches, one of large size	Three or more small dentine patches
5	Dentine patch (extensive)	Two or more dentine patches, secondary dentine may be slight	Three or more large dentine patches; secondary dentine none to slight
6	Secondary dentine (moderate to extensive)	Entire tooth still surrounded by enamel, secondary dentine moderate to heavy	Secondary dentine moderate to extensive; entire tooth completely surrounded by enamel
7	Crown (enamel) worn away on at least one side; extensive secondary dentine	Crown (enamel) worn away on at least one side; extensive secondary dentine	Crown (enamel) worn away on at least one side; extensive secondary dentine
8	Roots functioning in occlusal surface	Roots functioning in occlusal surface	Roots functioning in occlusal surface

1 Adapted from Molnar (1971, p. 178) by the addition of level 2.5.

(Hall and German, 1975:289)

*[1]
Exact position not known.

Site Number 35JA64
Burial number 4

Minor morphological traits in the human skull-----non-metric trait listing developed by Berry and Berry (1967, J. Anat. 101:361-379)

1. Highest nuchal line present: yes (no) NA
2. Ossicle at the lambda: yes (no) NA
3. Lambdoidal suture ossicle present: (none) 1 more____ NA
4. Parietal foramen present: right only left only (both) none NA
5. Bregmatic bone present: yes (no) NA
6. Metopism: yes (no) NA
7. Coronal suture ossicle present: (none) 1 more____ NA
8. Epipteric bone present: right only left only both none (NA)
9. Fronto-temporary articulation: right only left only both neither (NA)
10. Parietal notch bone present: right only left only both neither (NA)
11. Ossicle at asterion: right only left only both neither (NA)
12. Auditory torus present: right only left only both (neither) NA
13. Foramen of Haschke present: right only left only (both) neither NA
(2) 14. Mastoid foramen ex-sutural: (2) right only left only (both) neither NA
15. Mastoid foramen absent: right only left only both (neither) NA
16. Posterior condylar canal patent: right only left only both neither (NA)
17. Condylar facet double: right only left only both neither (NA)
18. Precondylar tubercle present: right left both central neither (NA)
19. Anterior condylar canal double: right left both neither (NA)
20. Foramen ovale incomplete: right left both neither (NA)
21. Foramen spinosum open: right left both neither (NA)
22. Accessory lesser palatine foramen present: right left both neither (NA)
23. Palatine torum present: yes (no) NA
24. Maxillary torus present: right left both neither (NA)
25. Zygomatico-facial foramen: right left (both) neither NA
26. Supraorbital foramen complete: right left both neither (NA)
27. Frontal foramen present: right left both neither (NA)
28. Anterior ethmoid foramen exsutural: right left both neither (NA)
29. Posterior ethmoid foramen absent: right left both neither (NA)
30. Accessory infraorbital foramen present: right left both neither (NA)

Site Number 35JA64
Burial Number 4

Date 20 June 1980

Observer Jenkins

Skeletal data form, Oregon State University Osteology Laboratory

Site (place) Applegate Site number 35 JA 64

Burial number 4

Sex (M) F I Basis of estimate Sciatic notch medium to narrow, mastoids moderate, historical records and burial artifacts (clothing, suit).

Age 45-65 Basis of estimate Condition of teeth, degree of suture closure.

Stature estimate 5' 5-6" Formula and bones used in making estimate(s) Brothwell, 1965:102. Femur, 2.32Fem+65.53. Radius, 3.79Rad+79.42.

Notes and other observations :

Innominate- Rt. pubis and inferior ramus of ischium missing, Iliac crest is present but area from mid-crest to iliac tuberosity is missing and fragmentary. Lf. side is lacking pubis and inferior ramus as well as the iliac crest and tuberosity.

Humerus- Lateral portion of rt. head, greater tubercle missing and the lateral epicondyle is fragmentary. Lf. side is the same as the right except more deterioration has taken place.

Radius- Rt. proximal end, area inferior to fovea of capitulaum but superior to neck, is fragmentary. Lf. styloid process missing.

Ulna- Lf. styloid process missing, posterior/inferior area of olecranon is missing.

Scapula- margins of both are badly fragmented.

Clavicle- missing margins on both ends of each.

Ribs- At least 22 are present plus a number of fragments.

Femur- Rt. head anterior margin missing, proximal portion of greater trochanter missing, surface of diaphysis missing and fragmentary. Medial condyle fragmented on anterior and medial sides, posterior of lateral condyle is also fragmentary. Lt. femur same as right except a bit more fragmentary

Tibia- Tuberosity and anterior of proximal end missing, exterior of diaphysis is badly deteriorated.

Fibula- Rt. exterior surface deteriorated. Lf., both proximal and distal ends broken off but present. Exterior of bone deteriorated.

2

site number 35 JA 64

burial number 4

Cranial bone enumberation; dental attributes

V present; F frg.; # missing; P path; A anomalous

Cranium:	R	L
parietal.....	V	V
temporal.....	V	V
nasals.....	F	F
maxilla.....	V	V
malar.....	V	V
palatine.....	V	V
mandible-body...	V	V
ramus.....	V	V
condyles.....	V/F	V/F
frontal.....	V	V
occipital.....	V	V
sphenoid.....	V	V

Evaluation of individual (e.g. Pathology, etc.

DENTAL RECORD

	M3	M2	M1	PM2	PM1	C	LI (L)	CI (L)	CI (R)	LI (R)	C	PM1	PM2	M1	M2	M3
maxilla	V	V	V	V	V	V	V	V	V	V	V	V	V	V	A V	V
mandible	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V

V present
bone missing
x missing postmortem
- missing antemortem
S shoveling
A abscess
I impaction
CR crowding
BR bone resorption
NE not erupted

NFE not fully erupted
OC occlusal caries
MC caries mesial
CD caries distal
CL caries lingual
BL caries buccal
d deciduous (baby tooth)
1-8 attrition level (see chart in Hall and Garman, 1975, Svesis)

(Note other features with footnote)

All teeth were present but the Right PM1 and M2 on the maxilla were represented by roots only. See page 6 for details on dentition.

3

site number 35 JA 64

burial number 4

Cranial metrics; take left and right if possible; indicate side

Cranium

Maximum length	18.46
Maximum breadth	14.28
Basion-bregma	14.34
Minimum frontal breadth	9.28
Bizygomatic	13.20
Nasal height	5.00
Nasal breadth	2.48
Left orbital breadth	3.75
Left orbital height	3.16
Right orbital breadth	3.80
Right orbital height	3.16
Biorbital breadth	9.68
Basion-porion	Lf.-6.69 Rt.-6.75
Porion-nasion	Lf.-11.01 Rt.-10.88
Porion-prosthion	Lf.-11.58 Rt.-11.65
Basion-nasion	10.35
Maximum frontal breadth	11.60
Basion-prosthion	9.31
Nasion-prosthion	10.11
Palate breadth (external)	6.10
Foramen magnum length	3.64

Mandible

Symphysial height	3.07
Diameter bigonial	10.29
Diameter bicondylar	over 11.80
Height of ascending ramus	6.60
Minimum breadth of ramus	Lf.-3.28 Rt.-3.10
Gonial angle	113.50
Total mandibular length	10.48

Indices

Cranial index	76.80
Nasal index	

Observations

metopic suture	yes	(no)	indeterminate
deformation	yes	(no)	indeterminate
sutural bones:			
sagittal	yes	(no)	indeterminate
coronal	(yes)	no	indeterminate
bregma	yes	(no)	indeterminate
Lambdoidal	(yes)	no	indeterminate
inca bone	(yes)	no	indeterminate

Other:

*1. Infradentale deteriorated so measurement may be in error.

*2. Lf. lateral margin of gonion is fragmentary.

*3. Lateral Margins of condyles missing.

*4. Anterior margin of ramus deteriorated.

5. Sutural Closure:

Sagital, coronal, and lambdoidal sutures are all fused endocranially but present exhibiting some fusion ecto-cranially.
Squamosal, present on the rt. and lf.
temporal-spheno, present on both rt. and lf.
Spheno-frontal, beginning to fuse on both sides.

site number 35 JA 64

burial number 4

Post-cranial bone enumeration

✓ Present; F frg.; # missing; P path; A anomalous

vertebrae	1	2	3	4	5	6	7	8	9	10	11	12
C	V	V	V	V	V	E	F					
T	F	F	F	F	F	F	F	F	F	F	F	F
L	F	F	F	F	F							
S	#	F	F	F	F	Auricular surface R L						
cox.	#	#	#	#								

For further detail of vertebrae see page 6

Innominate:	R	L
Pubic	#	#
Ischium	V	V
Ilium	V	F
Auricular	V	F
Acetabulum	V	V

Humerus:		
Prox.	F	F
Distal	V	V
Diaphysis	F	F

Radius:		
Prox.	V	V
Distal	F	V
Diaphysis	V	V

Ulna:		
Prox.	V	V
Distal	F	V
Diaphysis	#	V

Scapula:		
Glenoid	V	V
Spine	V	V
Corocoid	#	#
Acromion	F	F

Clavicle:	R	L
Medial end	#	#
Lateral end	#	#
Diaphysis	V	V
Ribs: 22 +	F	F

Sternum:	#	#
Manubrium		
Body		
Xiphoid		

Femur:	F	F
Prox.	F	F
Distal	F	F
Diaphysis	F	F

Patella:	F	F

Tibia:		
Prox.	F	F
Distal	#	#
Diaphysis	F	F

Fibula:		
Prox.	#	F
Distal	F	F
Diaphysis	F	F

	L	R
Talus:	#	#
Calcaneus:	#	#
Tarsals:	#	#
Metatarsals:	#	#
Carpals:	See page 6	
Metacarpals:	See page 6	
Phalanges:	See page 6	

site number 35 JA 64

burial number 4

Post-cranial metrics

Humerus	R	L
maximum morphological length	32.1	31.8
maximum diameter mid-shaft	2.47	2.41
minimum diameter mid-shaft	1.91	1.89
minimum circumference	6.80	6.80
maximum diameter head	X	X
physiological length	31.5	31.5

Clavicle		
maximum length	X	X
external breadth	X	2.49
internal breadth	X	X

* Femur		
maximum morphological length	43.50	X
in-position length (same as bicondylar length)	43.40	43.20
ant-post. diameter mid-shaft	3.14	3.09
transverse diam. mid-shaft	2.63	2.73
circumf. mid-shaft	9.00	9.00
maximum diameter head	X	X

Tibia		
maximum morphological length (exclude tibial spines)	X	X
ant-post. diam. mid-shaft	X	X
circumf. mid-shaft	X	X
transverse diam. mid-shaft	X	X

Sacrum	
maximum length	X
maximum breadth	X

Radius	R	L
maximum length	X	X
physiological length	X	22.70
minimum circumf.	X	X
*transverse diam. mid-shaft	1.22	1.00
*ant-post. diam. mid-shaft	1.73	1.68

Ulna See Page 6		
maximum length	X	24.7
*minimum circumf.	X	3.8
physiological length	X	22.4
ant-post. diam. mid-shaft	2.82	1.73
transverse diam. mid-shaft	1.74	1.32

Scapula		
maximum breadth	X	X
maximum height	X	X

Innominate		
coxal height	20.8	X
iliac breadth	X	X
cotylo-sciatic breadth	4.09	3.93

Fibula		
maximum length	X	X

(for all measurements except the scapula, refer to Olivier, 1969, Practical Anthropology; for the scapula, refer to Montagu, 1960, A Handbook of Anthropometry.)

(Put x if it is not possible to obtain measurement.)

*Subject to error due to deterioration of bone.

Additional Notes

site number 35 JA 64

burial number 4

Tarsals:

L		R
#	Cuboideum	#
#	Navicular	#
#	Os Cuneiform 1	#
#	Os Cuneiform 2	#
#	Os Cuneiform 3	#

Metatarsals:

L		R
#	1	#
#	2	#
#	3	#
#	4	#
#	5	#

Carpals:

L		R
V	Hamate	V
V	Capitate	V
#	Greater Multangular	#
V	Lesser Multangular	#
V	Navicular	#
V	Lunate	V
V	Pisiform	#
V	Triquetrum	V

Metacarpals:

L		R
#	1	V
V	2	V
V	3	2 fragments: position unknown
V	4	
V	5	

Phalanges:

L carpal 8 R carpal 6

L tarsal 0 R tarsal 0

Dentition:
Some calculus build up on the molars both buccal and lingually. There is a wide gap between the maxillary incisors (.7 cm). The occlusion is not perfectly symmetrical chewing probably took place on the left side. This is suggested because of an abscess with the second maxillary molar; left 3rd molars are worn more than the right. This problem could well have gone back for several years-perhaps a decade or two. The teeth are somewhat chipped and quite sharp-it appears to be post-mortem wear. It looks almost as if some secondary dentine has been chipped out in the anterior teeth. The 3rd molar, maxillary, on the right apparently has drifted forward to close the gap left by the 2nd molar.

Vertebrae: 1st five cervical missing only the spine. 6 and 7 missing anterior portion of the body, articulating facets and spines. Lumbar fragments include mostly the spines, and articulating facets and numerous body fragments.

Ulna: Anterior-posterior dia. at inferior margin of radial notch left 3.01 right 2.65
Transverse dia. at inferior margin of radial notch left 2.09 right 2.03

Site No. 35JA64

Dental Attrition Record **Burial No.** 4

	M3	M2	M1	PM2	PM1	C	LI	CI	CI	LI	C	PM1	PM2	M1	M2	M3
							L		R							
maxilla	5	6	6	6	6	6	6	6	6	6	6	6	*[1]	5	*[1]	2.5
mandible	6	7	7	6	5	5	5	5	5	5	5	5	5	6	5	2.5

Attrition Level	Incisor and Canine	Premolar	Molar
1	Unworn	Unworn	Unworn
2	Wear facets minimal; no observable dentine	Wear facets present; no observable dentine	Wear facets; no observable dentine
2.5	Small dentine patches visible; cusp pattern not obliterated	Small dentine patches; cusp pattern not obliterated	Small dentine patches; cusp pattern not obliterated
3	Cusp pattern obliterated; dentine patches present	Cusp pattern partially or completely obliterated; small dentine patches	Cusp pattern partially or completely obliterated small dentine patches
4	Dentine patch (minimal)	Two or more dentine patches, one of large size	Three or more small dentine patches
5	Dentine patch (extensive)	Two or more dentine patches, secondary dentine may be slight	Three or more large dentine patches; secondary dentine none to slight
6	Secondary dentine (moderate to extensive)	Entire tooth still surrounded by enamel, secondary dentine moderate to heavy	Secondary dentine moderate to extensive; entire tooth completely surrounded by enamel
7	Crown (enamel) worn away on at least one side; extensive secondary dentine	Crown (enamel) worn away on at least one side; extensive secondary dentine	Crown (enamel) worn away on at least one side; extensive secondary dentine
8	Roots functioning in occlusal surface	Roots functioning in occlusal surface	Roots functioning in occlusal surface

1 Adapted from Molnar (1971, p. 178) by the addition of level 2.5.

(Hall and German, 1975:289)

*[1] Root fragment only.

Site number 35JA64
Burial number 4

Minor morphological traits in the human skull-----non-metric trait listing developed by Berry and Berry (1967, J. Anat. 101:361-379)

1. Highest nuchal line present: yes (no) NA
2. Ossicle at the lambda: (yes) no NA
3. Lambdoidal suture ossicle present: none 1 more 15+ NA
4. Parietal foramen present: right only left only (both) none NA
5. Bregmatic bone present: yes (no) NA
6. Metopism: yes (no) NA
7. Coronal suture ossicle present: none 1 more 14+ NA
8. Epipteric bone present: right only left only both none (NA)
9. Fronto-temporary articulation: right only left only both neither (NA)
10. Parietal notch bone present: right only left only both (neither) NA
11. Ossicle at asterion: right only left only both neither (NA)
12. Auditory torus present: right only left only both (neither) NA
13. Foramen of Haschke present: right only left only both (neither) NA
14. Mastoid foramen ex-sutural: right only left only (both) neither NA
15. Mastoid foramen absent: right only left only both (neither) NA
16. Posterior condylar canal patent: right only left only both (neither) NA
17. Condylar facet double: right only left only both (neither) NA
18. Precondylar tubercle present: right left both (central) neither NA
19. Anterior condylar canal double: right left both (neither) NA
20. Foramen ovale incomplete: right left both (neither) NA
21. Foramen spinosum open: right left (both) neither NA
22. Accessory lesser palatine foramen present: right left (both) neither NA
23. Palatine torum present: (yes) no NA Small
24. Maxillary torus present: right left (both) neither NA
25. Zygomatico-facial foramen: right left both (neither) NA
26. Supraorbital foramen complete: right left both (neither) NA
27. Frontal foramen present: right left (both) neither NA
28. Anterior ethmoid foramen exsutural: right left both neither (NA)
29. Posterior ethmoid foramen absent: right left both neither NA
30. Accessory infraorbital foramen present: right left both (neither) NA

Date 29 June 1980

Observer Jenkins

Skeletal data form, Oregon State University Osteology Laboratory

Site (place) Applegate Site number 35 JA 64

Burial number 5

Sex (M) F I Basis of estimate Moderately robust, medium sciatic notch, historic records and burial artifacts (bow tie).

Age 55+ Basis of estimate bone resorption on mandible, degree of sutural closure, lipping on vertebrae and historic records.

Stature estimate 5' 7" Formula and bones used in making estimate(s) Brothwell, 1965:102. Femur, 2.32Fem+65.52.

Notes and other observations

Radius-surface of left diaphysis deteriorated. Right, surface of diaphysis deteriorated, anterior surface of distal end missing.
Ulna-Right diaphysis has surface deterioration.
Scapula-left, auxiliary margin present, portions of subscapular fossa anterior to spine, parts of spine and the medial portion of acromial process are all present but not articulated. Right, same as left except they are articulated.
Femur-Left, head fragmentary, trochanters both present, gluteal tuberosity is well developed, surface of diaphysis is deteriorating, medial condyle is missing anterior surface, lateral condyle is missing posterior surface, and patella facet is missing. Right, head missing, posterior surface of greater trochanter missing, gluteal tuberosity not as well developed as left side, diaphysis surface is markedly deteriorated, medial condyle missing completely, medial portion of the lateral condyle is present.
Tibia-Both, diaphysis only, surface of which is deteriorated badly.
Fibula-Left, lateral side of distal end is missing, medial side of proximal end is missing. Right lateral side distal end is missing, diaphysis exhibits surface deterioration.
Innominate-Left, missing anterior iliac crest and ischium, anterior portion of acetablulum is missing. Both inferior ramus missing.
Humerus-left, medial condyle fragmentary, lateral condyle missing, capitulum virtually gone. Bone growth in olecranon fossa. Right, lateral portion of head and tubercles missing, diaphysis has post-mortem markings, lateral condyle missing as is anterior surface of distal end, small hole (0.66) just superior to olecanon fossa.

2

site number 35 JA 64

burial number 5

Cranial bone enumberation; dental attributes

✓ present; F frg.; # missing; P path; A anomalous

Cranium:	R	L
parietal.....	F	V
temporal.....	V	V
nasals.....	#	#
maxilla.....	F	F
malar.....	V	V
palatine.....	#	#
mandible-body...	V	V
ramus.....	V	V
condyles.....	F	#
frontal.....	F	F
occipital.....	V	V
sphenoid.....	F	F

Evaluation of individual (e.g. Pathology, etc.

DENTAL RECORD

	L								R							
	M3	M2	M1	PM2	PM1	C	LI	CI	CI	LI	C	PM1	PM2	M1	M2	M3
maxilla #																
mandible	BR	BR	BR	BR	BR	X	X	BR *	BR *	X	X	X	shallow Root Socket	BR	BR	BR

✓ present
bone missing
x missing postmortem
- missing antemortem
S shoveling
A abscess
I impaction
CR crowding
BR bone resorption
NE not erupted

NFE not fully erupted
OC occlusal caries
MC caries mesial
CD caries distal
CL caries lingual
BL caries buccal
d deciduous (baby tooth)
1-8 attrition level (see chart in Hall and German, 1975, Svesis)

*CI's may have been present but alveolar damage and some resorption exists so it is unlikely. It doesn't look like any of the teeth or the gums could have been in very good condition.

(Note other features with footnote)

1. Chin square, gonial angles flare laterally.
2. Lateral side of ramus missing at mandibular foramen.
3. Frontal, missing orbits except for superior margins and interior surface base, squama ok.
4. Post-mortem deformation of cranium, breakage near the right lanbdoidal suture on the occipital and a widening of the cranuim at the parietals.

3

site number 35 JA 64

burial number 5

Cranial metrics; take left and right if possible; indicate side

Cranium

Maximum length 17.9
Maximum breadth X
Basion-bregma X
Minimum frontal breadth 9.2
Bizygomatic X
Nasal height X
Nasal breadth X
Left orbital breadth X
Left orbital height X
Right orbital breadth X
Right orbital height X
Biorbital breadth X
Basion-porion X
Porion-nasion X
Porion-prosthion X
Basion-nasion X
Maximum frontal breadth X
Basion-prosthion X
Nasion-prosthion X
Palate breadth (external) X
Foramen magnum length X

Mandible

Symphysial height 2.12
Diameter bigonial 10.7
Diameter bicondylar X
Height of ascending ramus X
Minimum breadth of ramus L 2.57 R 2.66
Gonial angle 131°
Total mandibular length at least 9.0

Indices

Cranial index X
Nasal index X

Observations

metopic suture	yes	no	indeterminate
deformation	yes	no	indeterminate
sutural bones:			
sagittal	yes	no	indeterminate
coronal	yes	no	indeterminate
bregma	yes	no	indeterminate
Lambdoidal	yes	no	indeterminate
inca bone	yes	no	indeterminate

Other: Sutural closure:

Coronal and sagittal fused endo-cranially
Lambdoidal exhibits some endo-cranial fusion.

coronal, fused in places ecto-cranially.

sagittal, present ecto-cranially.

squamosal suture not fused.

Symphysial height, taken at breakage line, not much more.

Condyles on mandible broken.

4

site number 35 JA 64

burial number 5

Post-cranial bone enumeration

✓ Present; F frg.; # missing; P path; A anomalous

vertebrae	1	2	3	4	5	6	7	8	9	10	11	12
C	F	F	#	F	F	F	#					
T												F
L	F	F	F	F	F							
S	F	F	F	F	F	Auricular surface R # L #						
cox.	#	#	#	#								

Innominate:	R	L
Pubic	#	#
Ischium	#	V
Ilium	F	F
Auricular	V	V
Acetabulum	F	F
Humerus:		
Prox	F	F
Distal	F	F
Diaphysis	V	V
Radius:		
Prox	#	#
Distal	V	F
Diaphysis	F	F
Ulna:		
Prox	F	F
Distal	#	#
Diaphysis	V	V
Scapula:		
Glenoid	F	F
Spine	F	F
Corocoid	#	#
Acromion	F	F

Clavicle:	R	L
Medial end	F	#
Lateral end	F	#
Diaphysis	V	V
Ribs:	5	3
Plus 9 fragments		
Sternum:	#	
Manubrium		
Body		
Xiphoid		
Femur:		
Prox	F	F
Distal	F	F
Diaphysis	V	V
Patella:		
Tibia:		
Prox	#	#
Distal	#	#
Diaphysis	V	V
Fibula:		
Prox	F	F
Distal	#	F
Diaphysis	V	V

	R	L
Talus:	F	F
Calcaneus:	F	F

Tarsals: See Page 6

Metatarsals: See Page 6

Carpals: See Page 6

Metacarpals: See Page 6

Phalanges: See Page 6

Calcaneus: articulating surfaces present.

5

site number 35 JA 64

burial number 5

Post-cranial metrics

Humerus

	R	L
maximum morphological length	31.7	x
maximum diameter mid-shaft	2.44	2.21
minimum diameter mid-shaft	1.79	1.84
minimum circumference	6.6	6.5
maximum diameter head	x	x
physiological length	x	x

Clavicle

maximum length	x	x
external breadth	1.89	x
internal breadth	x	x

Femur

maximum morphological length	x	44.9
in-position length (same as bicondylar length)	x	44.5
ant-post. diameter mid-shaft	2.93	3.11
transverse diam. mid-shaft	2.69	2.71
circumf. mid-shaft	8.7	9.3
maximum diameter head	x	x

*Tibia See page 5a

maximum morphological length (exclude tibial spines)	x	x
ant-post. diam. mid-shaft	3.61	x
circumf. mid-shaft	x	x
transverse diam. mid-shaft	2.26	x

Sacrum

maximum length	x
maximum breadth	x

Radius

	R	L
maximum length	x	x
physiological length	x	x
minimum circumf.	x	x
transverse diam. mid-shaft	x	x
ant-post. diam. mid-shaft	x	x

*Ulna See page 5a

maximum length	x	x
minimum circumf.	x	x
physiological length	x	x
ant-post. diam. mid-shaft	x	2.92
transverse diam. mid-shaft		2.08

Scapula

maximum breadth	x	x
maximum height	x	x

Innominate

coxal height	x	x
iliac breadth	x	x
cotylo-sciatic breadth	x	4.09

*Fibula See page 5a

maximum length	x	35.0

(for all measurements except the scapula, refer to Olivier, 1969, Practical Anthropology; for the scapula, refer to Montagu, 1960, A Handbook of Anthropometry.)

(Put x if it is not possible to obtain measurement.)

5a

site number 35 JA 64

burial number 5

*Tibia- Anterior-posterior dia. and transverse dia taken at the nutrient foramen.

*Ulna- Anterior-posterior dia. and transerse dia. take at inferior margin of the radial notch.

*Fibula- Post-mortem deformation has caused this bone to bend so the measurement is undoubtedly a bit short.

site number 35 JA 64

burial number 5

Additional Notes

Tarsals:

L		R
F	Cuboideum	#
F	Navicular	#
F	Os Cuneiform 1	#
F	Os Cuneiform 2	#
#	Os Cuneiform 3	#

Metatarsals:

L		R
	1	F
	2	
	3	
	4	
F	5	F

Plus 6 unplaceable fragments

Carpals:

L		R
F	Hamate	F
F	Capitate	F
F	Greater Multangular	#
#	Lesser Multangular	#
F	Navicular	F
F	Lunate	F
#	Pisiform	#
#	Triquetrum	#

4 unidentifiable fragments

Metacarpals:

L		R
F	1	#
F	2	#
#	3	#
F	4	#
F	5	#

Plus 2 unplaceable fragments

Phalanges:

L carpal 13 R carpal 13

L tarsal 1 R tarsal 1 plus 1 other

site number 35JA64
burial number 5

Minor morphological traits in the human skull-----non-metric trait listing developed by Berry and Berry (1967, J. Anat. 101:361-379)

1. Highest nuchal line present: yes **no** NA
2. Ossicle at the lambda: **yes** no NA
3. Lambdoidal suture ossicle present: none 1 more 11+ NA
4. Parietal foramen present: right only left only both **none** NA
5. Bregmatic bone present: yes **no** NA
6. Metopism: yes **no** NA
7. Coronal suture ossicle present: none 1 more 2+ NA
8. Epipteric bone present: right only left only both **none** NA
9. Fronto-temporary articulation: right only left only both **neither** NA
10. Parietal notch bone present: right only left only both neither **NA**
11. Ossicle at asterion: right only left only both **neither** NA
12. Auditory torus present: right only left only both **neither** NA
13. Foramen of Haschke present: right only left only both **neither** NA
14. Mastoid foramen ex-sutural: **right** only **left** only both neither **NA**
15. Mastoid foramen absent: **right** only **left** no only both neither **NA**
16. Posterior condylar canal patent: right only left only both neither **NA**
17. Condylar facet double: right only left only both neither **NA**
18. Precondylar tubercle present: right left both central **neither** NA
19. Anterior condylar canal double: right left both **neither** NA
20. Foramen ovale incomplete: right left both **neither** NA
21. Foramen spinosum open: right left both neither **NA**
22. Accessory lesser palatine foramen present: right left both neither **NA**
23. Palatine torum present: yes no **NA**
24. Maxillary torus present: right left both neither **NA**
25. Zygomatico-facial foramen: **right** left both neither NA
26. Supraorbital foramen complete: right left both **neither** NA
27. Frontal foramen present: right left **both** neither NA
28. Anterior ethmoid foramen exsutural: right left both neither **NA**
29. Posterior ethmoid foramen absent: right left both neither **NA**
30. Accessory infraorbital foramen present: right left both neither **NA**

Date 20 June 1980

Observer Jenkins

Skeletal data form, Oregon State University Osteology Laboratory

Site (place) Applegate Site number 35 JA 64

Burial number 6

Sex M F I Basis of estimate No estimation of sex could be made.

Age ____ Basis of estimate 7 months of intrauterine life (Lockhart, 1965:69). Petrous portion developed, this occurs by the 6th month. Sphenoid no yet fused this occurs in the 8th month.

Stature estimate ____ Formula and bones used in making estimate(s) No estimation was made.

Notes and other observations

Parietal-Both frontal eminences present.

Temporal-Both petrous, squamosal parts, and posterior portion of zygomatic arch were present.

Maxilla-Both, portion with inferior orbital foramen, articulates with the malar, and inferior portion of orbits present.

Frontal-Both, eminences and superior parts of the orbits were present.

Occipital-Both, condyles and part of the calva.

Sphenoid-Both, foramen rotundums, part of the greater wing adjacent to foramen rotundum and foramen ovale were present.

Vertebrae-16 right spinous fragments and 9 left spinous fragments. At least 2 of these were identifiable as cervical. The rest are thoracic or lumbar.

Metacarpals identified could just as well be metatarsals.

Scapula-Left corocoid, proximal portion of process.

2

site number 35 JA 64

burial number 6

Cranial bone enumberation; dental attributes

✓ present; F frg.; # missing; P path; A anomalous

Cranium:	R	L
parietal.....	F	F
temporal.....	F	F
nasals.....	#	#
maxilla.....	F	F
malar.....	V	V
palatine.....	#	#
mandible-body...	V	V
ramus.....	#	#
condyles.....	#	#
frontal.....	F	F
occipital.....	F	F
sphenoid.....	F	F

Evaluation of Individual (e.g. Pathology, etc.

DENTAL RECORD No teeth

	M3	M2	M1	PM2	PM1	C	LI	CI	CI	LI	C	PM1	PM2	M1	M2	M3
							L		R							
maxilla																
mandible																

✓ present
bone missing
x missing postmortem
- missing antemortem
S shoveling
A abscess
I impaction
CR crowding
BR bone resorption
NE not erupted

NFE not fully erupted
OC occlusal caries
MC caries mesial
CD caries distal
CL caries lingual
BL caries buccal
d deciduous (baby tooth)
1-8 attrition level (see chart in Hall and German, 1975, Svesis)

(Note other features with footnote)

3

site number 35 JA 64

burial number 6

Cranial metrics; take left and right if possible; indicate side

Cranium	R	L
Maximum length	X	X
Maximum breadth	X	X
Basion-bregma	X	X
Minimum frontal breadth	X	X
Bizygomatic	X	X
Nasal height	X	X
Nasal breadth	X	X
Left orbital breadth	X	X
Left orbital height	X	X
Right orbital breadth	X	X
Right orbital height	X	X
Biorbital breadth	X	X
Basion-porion	X	X
Porion-nasion	X	X
Porion-prosthion	X	X
Basion-nasion	X	X
Maximum frontal breadth	X	X
Basion-prosthion	X	X
Nasion-prosthion	X	X
Palate breadth (external)	X	X
Foramen magnum length	X	X

Mandible		
Symphysial height	X	X
Diameter bigonial	X	X
Diameter bicondylar	X	X
Height of ascending ramus	X	X
Minimum breadth of ramus	X	X
Gonial angle	X	
Total mandibular length	X	X

Indices	R	L
Cranial index	X	X
Nasal index	X	X

Observations			
metopic suture	yes	no	indeterminate
deformation	yes	no	indeterminate
sutural bones:			
sagittal	yes	no	indeterminate
coronal	yes	no	indeterminate
bregma	yes	no	indeterminate
lambdoidal	yes	no	indeterminate
inca bone	yes	no	indeterminate

Other:

4

site number 35 JA 64

burial number 6

Post-cranial bone enumeration

✓ Present; F frg.; # missing; P path; A anomalous

vertebrae	1	2	3	4	5	6	7	8	9	10	11	12
C												
T												
L												
S	F					Auricular surface R# L #						
cox.												

Innominate:	R	L
Pubic	#	#
Ischium	#	#
Ilium	#	V
Auricular	#	V
Acetabulum	#	#
Humerus:		
Prox.	#	#
Distal	#	#
Diaphysis	V	V
Radius:		
Prox.	#	#
Distal	#	#
Diaphysis	V	V
Ulna:		
Prox.	#	#
Distal	#	#
Diaphysis	V	V
Scapula:		
Glenoid	V	V
Spine	F	#
Corocoid	#	F
Acromion	#	#

Clavicle:	R	L
Medial end	#	#
Lateral end	#	#
Diaphysis	V	V
Ribs:		
Sternum:		
Manubrium	V	
Body	#	
Xiphoid	#	
Femur:		
Prox.	#	#
Distal	#	#
Diaphysis	V	V
Patella:	#	#
Tibia:		
Prox.	#	#
Distal	#	#
Diaphysis	V	V
Fibula:		
Prox.	#	#
Distal	#	#
Diaphysis	V	V

	R	L
Talus:	#	#
Calcaneus:	#	#
Tarsals:	#	#
Metatarsals:	#	#
Carpals:	#	#
Metacarpals:	5	4
Phalanges:	#	#

5

site number 35 JA 64

burial number 6

Post-cranial metrics

Humerus

	R	L
maximum morphological length	3.98	4.05
maximum diameter mid-shaft	0.35	0.32
minimum diameter mid-shaft	X	X
minimum circumference	X	X
maximum diameter head	X	X
physiological length	X	X

Clavicle

maximum length	2.73	2.81
external breadth	X	X
internal breadth	X	X

Femur

maximum morphological length	4.28	X
in-position length (same as bicondylar length)	X	X
ant-post. diameter mid-shaft	X	X
transverse diam. mid-shaft	X	X
circumf. mid-shaft	X	X
maximum diameter head	X	X

***Tibia**

maximum morphological length (exclude tibial spines)	X	X
ant-post. diam. mid-shaft	X	0.39
circumf. mid-shaft	X	0.46
transverse diam. mid-shaft	X	X

Sacrum

maximum length 6.7 body head length

maximum breadth 1.40 wing to wing

Radius

	R	L
maximum length	X	X
physiological length	X	X
minimum circumf.	X	X
transverse diam. mid-shaft	X	X
ant-post. diam. mid-shaft	X	X

Ulna

maximum length	4.05	X
minimum circumf.	X	X
physiological length	X	X
ant-post. diam. mid-shaft	X	X
transverse diam. mid-shaft	X	X

Scapula

glenoid length	0.61	X
glenoid breadth	0.31	0.33

Innominate

greatest length	1.64
auricular to opposite side of illium	1.34
cotylo-sciatic breadth	

Fibula

maximum length

5th rib right in photo length	3.85
4th rib left in photo length	3.05
1st rib left in photo length	1.68
tubercle width 1st rib in photo	0.31

(for all measurements except the scapula, refer to Olivier, 1969, Practical Anthropology; for the scapula, refer to Montagu, 1960, A Handbook of Anthropometry.)

(Put x if it is not possible to obtain measurement.)

*Tibia-Measurements at nutrient foramen.

6

Additional Notes

site number 35 JA 64

burial number 6

Tarsals:

L		R
	Cuboideum	
	Navicular	
	Os Cuneiform 1	
	Os Cuneiform 2	
	Os Cuneiform 3	

Metatarsals:

L		R
	1	
	2	
	3	
	4	
	5	

Carpals:

L		R
	Hamate	
	Capitate	
	Greater Multangular	
	Lesser Multangular	
	Navicular	
	Lunate	
	Pisiform	
	Triquetrum	

Metacarpals:

L		R
	1	
	2	
	3	
	4	
	5	

Phalanges:

L carpal R carpal

L tarsal R tarsal

Sternum-Manubrium length 1.09
breadth 0.80

Petrous-Length right 2.13 left 2.21
Breadth right 1.37 left 1.39

Date 28 June 1980

Observer Jenkins

Skeletal data form, Oregon State University Osteology Laboratory

Site (place) Applegate Site number 35 JA 64

Burial number 7

Sex (M) F I Basis of estimate well developed mastoids though not excessively large; moderate robusticity; sciatic notch was narrow; historic records; burial artifacts-bow tie.

Age 60+ Basis of estimate loss and condition of teeth, great deal of bone resorption degree of sutural closure, historic records.

Stature estimate 5'6½"-5'7½" Formula and bones used in making estimate(s) Comparison with other burials, Brothwell, 1965:102 *Femur, 2.32 Fem+65.53.

Notes and other observations
*Femur-See page 6.
Humerus-exterior surface deteriorating on both left and right. Right, missing medial condyle. Left, distal represented by olecranon fossa and a portion of the medial condyle.
Radius-exterior surface of both left and right deteriorating.
Ulna-exterior surfaces of the distal, proximal and diaphysis show surface deterioration.
Scapula-Both, medial portion of spine, parts of the body, the superior margin are all present. Right inferior angle and axillary margin present. Left, vertebral margin present but fragmentary.
Clavicle-Right, acromial facet missing, coracoid tuberosity present, diaphysis surface deteriorating, sternal end surface is fragmentary on posterior/inferior side. Left, coracoid tuberosity present, surface of diaphysis fragmentary.
Femur-Right, head flattened, greater and lesser trochanter missing. Diaphysis exhibits spotty surface deterioration, distal is fragmentary with portions of both the medial and lateral condyles ind intercondyloid fossa being present. Left, head is in pieces and not flattened like the right, trochanters are both missing, diaphysis is in good shape, distal medial condyle present, lateral condyle missing, intercondyloid fossa is fragmentary in the lateral margin.
Tibia-Right, proximal condyle present, but not articulating with the diaphysis, diaphysis is fragmentary on the anterior surface, distal inferior articulating facet present. Left distal same as right, diaphysis same as right, distal is more fragmentary.
Fibula-Right, exterior surface of lateral malleolus fragmentary. Both are in reasonably good shape except they lack the proximal end.
(Continued page 6)

site number 35 JA 64

burial number 7

Cranial bone enumberation; dental attributes

✓ present; F frg.; # missing; P path; A anomalous

Cranium:	R	L
parietal.....	V	V
temporal.....	V	F
nasals.....	#	#
maxilla.....	#	#
malar.....	#	V
palatine.....	#	#
mandible-body...	V	V
ramus.....	#	#
condyles.....	#	#
frontal.....	F	F
occipital.....	V	F
sphenoid.....	#	#

Evaluation of individual (e.g. Pathology, etc.

Exterior surface of the cranium is deteriorating quite a bit.
Skull exhibits post-mortem distortion and crushing.
Gonial angle present on right side.
Left petrous part present.

DENTAL RECORD

	M3	M2	M1	PM2	PM1	C	LI (L)	CI (L)	CI (R)	LI (R)	C	PM1	PM2	M1	M2	M3
maxilla #																
mandible																

✓ present
bone missing
x missing postmortem
- missing antemortem
S shoveling
A abscess
I impaction
CR crowding
BR bone resorption
NE not erupted

NFE not fully erupted
OC occlusal caries
MC caries mesial
CD caries distal
CL caries lingual
BL caries buccal
d deciduous (baby tooth)
1-8 attrition level (see chart in Hall and German, 1975, Synesis)

(Note other features with footnote)
Mandible exhibits resorption similiar to that of the other burials. Root cavity for at least the left M1 and possibly the Right M3. Root fragments in the left M1 and Right LI.

3

site number 35 JA 64

burial number 7

Cranial metrics; take left and right if possible; indicate side

Cranium

Maximum length	X
Maximum breadth	X
Basion-bregma	X
Minimum frontal breadth	X
Bizygomatic	X
Nasal height	X
Nasal breadth	X
Left orbital breadth	X
Left orbital height	X
Right orbital breadth	X
Right orbital height	X
Biorbital breadth	X
Basion-porion	X
Porion-nasion	X
Porion-prosthion	X
Basion-nasion	X
Maximum frontal breadth	X
Basion-prosthion	X
Nasion-prosthion	X
Palate breadth (external)	X
Foramen magnum length	X

Mandible

Symphysial height	X
Diameter bigonial	X
Diameter bicondylar	X
Height of ascending ramus	X
Minimum breadth of ramus	X
Gonial angle	X
Total mandibular length	X

Indices

Cranial index	X
Nasal index	X

Observations

metopic suture	yes	(no)	indeterminate
deformation	yes	(no)	indeterminate
sutural bones:			
sagittal	yes	(no)	indeterminate
coronal	(yes)	no	indeterminate
bregma	yes	(no)	indeterminate
lambdoidal	(yes)	no	indeterminate
inca bone	yes	no	(indeterminate)

Other: Sutural Closure:

Lambdoidal-only lateral portion of suture present.

Squamosal-present on right side.

Sagittal and Coronal, colsed endo-cranially and ecto-cranially.

In general there appears to be a greater degree of sutural closure on this specimen than on the others, comparable to number 11.

4

site number 35 JA 64

burial number 7

Post-cranial bone enumeration

✓ Present; F frg.; # missing; P path; A anomalous

vertebrae	1	2	3	4	5	6	7	8	9	10	11	12
C	F	F	F	F	F	F	F					
T		F	F	F	F	F	F	F	F	F	F	#
L	F	F	F	F	F							
S	#	F	F	F	#	Auricular surface R # L #						
cox.	#	#	#	#								

Innominate:	R	L
Pubic	#	#
Ischium	#	#
Ilium	#	#
Auricular	F	F
Acetabulum	F	F
Humerus:		
Prox.	#	#
Distal	F	F
Diaphysis	V	V
Radius:		
Prox.	#	#
Distal	#	#
Diaphysis	V	V
Ulna:		
Prox.	V	V
Distal	#	#
Diaphysis	V	V
Scapula:		
Glenoid	#	#
Spine	F	F
Corocoid	#	#
Acromion	F	F

Clavicle:	R	L
Medial end	F	#
Lateral end	#	#
Diaphysis	V	V
Ribs:	12	9
Sternum:	#	
Manubrium		
Body		
Xiphoid		
Femur:		
Prox.	F	F
Distal	F	F
Diaphysis	F	F
Patella:	F	#
Tibia:		
Prox.	F	F
Distal	F	F
Diaphysis	V	V
Fibula:		
Prox.	#	#
Distal	V	V
Diaphysis	V	V

	R	L
Talus:	F	F
Calcaneus:	F	F
Tarsals:	See Page 6	
Metatarsals:	See Page 6	
Carpals:	See Page 6	
Metacarpals:	See Page 6	
Phalanges:	See Page 6	

5

site number 35 JA 64

burial number 7

Post-cranial metrics

Humerus	R	L
maximum morphological length	X	X
maximum diameter mid-shaft	X	X
minimum diameter mid-shaft	X	X
minimum circumference	X	X
maximum diameter head	X	X
physiological length	X	X

Clavicle		
maximum length	X	X
external breadth	1.98	X
internal breadth	X	X

*Femur See Page 6

*maximum morphological length	X	46.5
in-position length (same as bicondylar length)	X	X
ant-post. diameter mid-shaft	2.95	3.08
transverse diam. mid-shaft	2.78	2.80
circumf. mid-shaft	9.0	9.1
maximum diameter head	X	X

*Tibia See Page 6

maximum morphological length (exclude tibial spines)	X	X
ant-post. diam. ~~mid-shaft~~	3.67	3.40
circumf. mid-shaft	X	X
transverse diam. ~~mid-shaft~~	2.24	2.20

Sacrum	
maximum length	X
maximum breadth	X

Radius	R	L
maximum length	X	X
physiological length	X	X
minimum circumf.	X	X
transverse diam. mid-shaft	X	X
ant-post. diam. mid-shaft	X	X

Ulna		
maximum length	X	X
minimum circumf.	X	X
physiological length	X	X
ant-post. diam. mid-shaft	X	X
transverse diam. mid-shaft	X	X

Scapula		
maximum breadth	X	X
maximum height	X	X

Innominate		
coxal height	X	X
iliac breadth	X	X
cotylo-sciatic breadth	X	3.88

Fibula		
maximum length	X	X

(for all measurements except the scapula, refer to Olivier, 1969, Practical Anthropology; for the scapula, refer to Montagu, 1960, A Handbook of Anthropometry.)

(Put x if it is not possible to obtain measurement.)

6

site number 35 JA 64

burial number 7

Additional Notes

Tarsals:

L		R
F	Cuboideum	F
F	Navicular	#
#	Os Cuneiform 1	#
F	Os Cuneiform 2	#
F	Os Cuneiform 3	F

Metatarsals:

L		R
#	1	#
#	2	#
F	3	F
#	4	F
F	5	F

Carpals:

L		R
F	Hamate	#
F	Capitate	#
#	Greater Multangular	#
#	Lesser Multangular	#
F	Navicular	#
F	Lunate	#
F	Pisiform	#
F	Triquetrum	#

Metacarpals:

L		R
#	1	F
F	2	F
F	3	F
F	4	F
F	5	#

Phalanges:

L carpal 7 R carpal 3

L tarsal R tarsal 1 fragment, side unknown

Innominate-Both sides represented by fragments around the acetabulum and the sciatic notch.

Tibia-Anterior-posterior and transverse dia. taken at nutrient foramen.

Femur-Length of the femur was determined by placing both the right and left on the osteometric board while matching the lesser trochanters together. In this manner a composite figure was arrived at which approximated the femur length. This procedure was necessary because neither femur had both a proximal and a distal end that were suitable to use in the length determination. The left distal end and the right proximal end were suitable and thus the composite approach was necessitated.

site number 35JA64
burial number 7

Minor morphological traits in the human skull-----non-metric trait listing developed by Berry and Berry (1967, J. Anat. 101:361-379)

1. Highest nuchal line present: yes no NA
2. Ossicle at the lambda: yes no NA
3. Lambdoidal suture ossicle present: none 1 more____ NA
4. Parietal foramen present: right only left only both none NA
5. Bregmatic bone present: yes no NA
6. Metopism: yes no NA
7. Coronal suture ossicle present: none 1 more____ NA
8. Epipteric bone present: right only left only both none NA
9. Fronto-temporary articulation: right only left only both neither NA
10. Parietal notch bone present: right only left only both neither NA
11. Ossicle at asterion: right only left only both neither NA
12. Auditory torus present: right only left only both neither NA
13. Foramen of Haschke present: right only left only both neither NA
14. Mastoid foramen ex-sutural: right only left only both neither NA
15. Mastoid foramen absent: right only left only both neither NA
16. Posterior condylar canal patent: right only left only both neither NA
17. Condylar facet double: right only left only both neither NA
18. Precondylar tubercle present: right left both central neither NA
19. Anterior condylar canal double: right left both neither NA
20. Foramen ovale incomplete: right left both neither NA
21. Foramen spinosum open: right left both neither NA
22. Accessory lesser palatine foramen present: right left both neither NA
23. Palatine torum present: yes no NA
24. Maxillary torus present: right left both neither NA
25. Zygomatico-facial foramen: right left both neither NA
26. Supraorbital foramen complete: right left both neither NA
27. Frontal foramen present: right left both neither NA
28. Anterior ethmoid foramen exsutural: right left both neither NA
29. Posterior ethmoid foramen absent: right left both neither NA
30. Accessory infraorbital foramen present: right left both neither NA

Date 2 July 1980

Observer Jenkins/Hall

Skelatal data form, Oregon State University Osteology Laboratory

Site (place) Applegate Site number 35 JA 64

Burial number 8

Sex M F I Basis of estimate No estimate of sex could be made.

Age ____ Basis of estimate 6-7 month intrauterine life. Comparison of RT orbit size with other infant burial #6.

Stature estimate ____ Formula and bones used in making estimate(s)

Notes and other observations

8 cranium fragments
1 unidentifiable fragment
no identifiable post cranial parts.

site number 35 JA 64

burial number 8

Cranial bone enumberation; dental attributes

✓ present; F frg.; # missing; P path; A anomalous

Cranium:	R	L
parietal.....		
temporal.....		
nasals.....		
maxilla.....		
malar.....		
palatine.....		
mandible-body...		
ramus.....		
condyles.....		
frontal.....	F	
occipital.....		
sphenoid.....		

Evaluation of individual (e.g. Pathology, etc.

8 cranium fragments

DENTAL RECORD

	M3	M2	M1	PM2	PM1	C	LI (L)	CI (L)	CI (R)	LI (R)	C	PM1	PM2	M1	M2	M3
maxilla																
mandible																

✓ present
bone missing
x missing postmortem
- missing antemortem
S shoveling
A abscess
I impaction
CR crowding
BR bone resorption
NE not erupted

NFE not fully erupted
OC occlusal caries
MC caries mesial
CD caries distal
CL caries lingual
BL caries buccal
d deciduous (baby tooth)
1-8 attrition level (see chart in Hall and German, 1975, Syesis)

(Note other features with footnote)

3

site number 35JA64

burial number 8

Cranial metrics; take left and right if possible; indicate side

Cranium

Maximum length _____

Maximum breadth _____

Basion-bregma _____

Minimum frontal breadth _____

Bizygomatic _____

Nasal height _____

Nasal breadth _____

Left orbital breadth _____

Left orbital height _____

Right orbital breadth _____

Right orbital height _____

Biorbital breadth _____

Basion-porion _____

Porion-nasion _____

Porion-prosthion _____

Basion-nasion _____

Maximum frontal breadth _____

Basion-prosthion _____

Nasion-prosthion _____

Palate breadth (external) _____

Foramen magnum length _____

Mandible

Symphysial height _____

Diameter bigonial _____

Diameter bicondylar _____

Height of ascending ramus _____

Minimum breadth of ramus _____

Gonial angle _____

Total mandibular length _____

Indices

Cranial index _____

Nasal index _____

Observations

metopic suture	yes	no	indeterminate
deformation	yes	no	indeterminate
sutural bones:			
sagittal	yes	no	indeterminate
coronal	yes	no	indeterminate
bregma	yes	no	indeterminate
lambdoidal	yes	no	indeterminate
inca bone	yes	no	indeterminate

Other:

4

site number 35JA64

burial number 8

Post-cranial bone enumeration

✓ Present; F frg.; # missing; P path; A anomalous

vertebrae	1	2	3	4	5	6	7	8	9	10	11	12
C												
T												
L												
S						Auricular surface R L						
cox.												

Innominate:	R	L
Pubic		
Ischium		
Ilium		
Auricular		
Acetabulum		
Humerus:		
Prox		
Distal		
Diaphysis		
Radius:		
Prox		
Distal		
Diaphysis		
Ulna:		
Prox		
Distal		
Diaphysis		
Scapula:		
Glenoid		
Spine		
Corocoid		
Acromion		

Clavicle:	R	L
Medial end		
Lateral end		
Diaphysis		
Ribs:		
Sternum:		
Manubrium		
Body		
Xiphoid		
Femur:		
Prox		
Distal		
Diaphysis		
Patella:		
Tibia:		
Prox		
Distal		
Diaphysis		
Fibula:		
Prox		
Distal		
Diaphysis		

Talus:

Calcaneus:

Tarsals:

Metatarsals:

Carpals:

Metacarpals:

Phalanges:

5

site number 35JA64

burial number 8

Post-cranial metrics

Humerus

maximum morphological length_____

maximum diameter mid-shaft_____

minimum diameter mid-shaft_____

minimum circumference_____

maximum diameter head_____

physiological length_____

Clavicle

maximum length_____

external breadth_____

internal breadth_____

Femur

maximum morphological length_____

in-position length (same as bicondylar length)_____

ant-post. diameter mid-shaft_____

transverse diam. mid-shaft_____

circumf. mid-shaft_____

maximum diameter head_____

Tibia

maximum morphological length_____ (exclude tibial spines)

ant-post. diam. mid-shaft_____

circumf. mid-shaft_____

transverse diam. mid-shaft_____

Sacrum

maximum length_____

maximum breadth_____

Radius

maximum length_____

physiological length_____

minimum circumf._____

transverse diam. mid-shaft_____

ant-post. diam. mid-shaft_____

Ulna

maximum length_____

minimum circumf._____

physiological length_____

ant-post. diam. mid-shaft_____

transverse diam. mid-shaft_____

Scapula

maximum breadth_____

maximum height_____

Innominate

coxal height_____

iliac breadth_____

cotylo-sciatic breadth_____

Fibula

maximum length_____

(for all measurements except the scapula, refer to Olivier, 1969, Practical Anthropology; for the scapula, refer to Montagu, 1960, A Handbook of Anthropometry.)

(Put x if it is not possible to obtain measurement.)

Date 24 June 1980

Observer Jenkins

Skeletal data form, Oregon State University Osteology Laboratory

Site (place) Applegate Site number 35 JA 64

Burial number 11

Sex (M) F I Basis of estimate Robustness of bone, medium mastoids, historical records, burial artifacts (bow tie), and presence of hair on the mandible.

Age 60+ Basis of estimate degree of sutural closure, resorption of bone on mandible, and historical records.

Stature estimate 5'5" Formula and bones used in making estimate(s)

Comparison with the femur from burial 4. They were about the same size though varying in robustness.

Notes and other observations

Skull-most of the calvarium is present but little of the face and cranial base.

Mandible-deteriorated badly, held together by a matrix of roots and soil, exhibits resorption of the bone.

post-carnial- very fragmentary representation.

Femur-midpoint determined by comparison with the femur from burial #4 which was of the same approximate size.

Innominate-one fragment of the greater sciatic notch, left side.

Ulna-exterior surface deteriorating.

site number 35 JA 64

burial number 11

Cranial bone enumberation; dental attributes

✓ present; F frg.; # missing; P path; A anomalous

Cranium:	R	L
parietal.....	F	F
temporal.....	F	F
nasals.....	#	#
maxilla.....	#	#
malar.....	F	#
palatine.....	#	#
mandible-body...	V	V
ramus.....	F	F
condyles.....	#	#
frontal.....	F	
occipital.....	F	
sphenoid.....	#	

Evaluation of individual (e.g. Pathology, etc.

DENTAL RECORD No teeth.

	M3	M2	M1	PM2	PM1	C	LI	CI	CI	LI	C	PM1	PM2	M1	M2	M3
							L		R							
maxilla *																
mandible																

✓ present
bone missing
x missing postmortem
- missing antemortem
S shoveling
A abscess
I impaction
CR crowding
BR bone resorption
NE not erupted

NFE not fully erupted
OC occlusal caries
MC caries mesial
CD caries distal
CL caries lingual
BL caries buccal
d deciduous (baby tooth)
1-8 attrition level (see chart in Hall and German, 1975, Syesis)

(Note other features with footnote)

3

site number 35 JA 64

burial number 11

Cranial metrics; take left and right if possible; indicate side

Cranium

Maximum length	X
Maximum breadth	X
Basion-bregma	X
Minimum frontal breadth	10.1
Bizygomatic	X
Nasal height	X
Nasal breadth	X
Left orbital breadth	X
Left orbital height	X
Right orbital breadth	X
Right orbital height	X
Biorbital breadth	X
Basion-porion	X
Porion-nasion	X
Porion-prosthion	X
Basion-nasion	X
Maximum frontal breadth	X
Basion-prosthion	X
Nasion-prosthion	X
Palate breadth (external)	X
Foramen magnum length	X

Mandible

Symphysial height	X
Diameter bigonial	X
Diameter bicondylar	X
Height of ascending ramus	X
Minimum breadth of ramus	X
Gonial angle	X
Total mandibular length	X

Indices

Cranial index	X
Nasal index	X

Observations

metopic suture	yes	no	indeterminate
deformation	yes	no	indeterminate
sutural bones:			
sagittal	yes	no	indeterminate
coronal	yes	no	indeterminate
bregma	yes	no	indeterminate
lambdoidal	yes	no	indeterminate
inca bone	yes	no	indeterminate

Other: Sutural Closure: Those sutures present are fused both endo and ecto-cranially, except the squamosal suture. It is fused endo-cranially on the left but not ecto-cranially. Right side is indeterminate

4

site number 35 JA 64

burial number 11

Post-cranial bone enumeration

✓ Present; F frg.; # missing; P path; A anomalous

vertebrae	1	2	3	4	5	6	7	8	9	10	11	12
C	F	F	#	#	#	#	#					
T	#	#	#	#	#	#	#	#	#	#	#	#
L						3 lumbar fragments, probably 2,3,4.						
S	#	#	#	#	#	Auricular surface R# L #						
cox.	#	#	#	#								

Innominate:	R	L
Pubic	#	#
Ischium	#	#
Ilium	#	F
Auricular	#	#
Acetabulum	#	#
Humerus:		
Prox	#	#
Distal	F	F
Diaphysis	F	F
Radius:	#	#
Prox		
Distal		
Diaphysis		
Ulna:		
Prox	F	F
Distal	F	#
Diaphysis	F	F
Scapula:	#	#
Glenoid		
Spine		
Corocoid		
Acromion		

	R	L
Clavicle:	#	#
Medial end		
Lateral end		
Diaphysis		
Ribs:	#	#
Sternum:	#	
Manubrium		
Body		
Xiphoid		
Femur:		
Prox	#	F
Distal	#	F
Diaphysis	F	V
Patella:	#	#
Tibia:		
Prox	#	#
Distal	#	#
Diaphysis	V	V
Fibula:	#	#
Prox		
Distal		
Diaphysis		

	R	L
Talus:	#	#
Calcaneus:	#	#
Tarsals:	#	#
Metatarsals:	#	#
Carpals:	#	#
Metacarpals:	#	#
Phalanges:	1 carpal	

site number 35 JA 64

burial number 11

Post-cranial metrics

Humerus	L	R
maximum morphological length	X	X
maximum diameter mid-shaft	X	X
minimum diameter mid-shaft	X	X
minimum circumference	X	X
maximum diameter head	X	X
physiological length	X	X

Clavicle		
maximum length	X	X
external breadth	X	X
internal breadth	X	X

*Femur See Page 1		
maximum morphological length	X	X
in-position length (same as bicondylar length)	X	X
ant-post. diameter mid-shaft	3.22	3.16
transverse diam. mid-shaft	3.04	2.95
circumf. mid-shaft	9.9	9.8
maximum diameter head		

Tibia		
maximum morphological length (exclude tibial spines)	X	X
ant-post. diam. mid-shaft	X	X
circumf. mid-shaft	X	X
transverse diam. mid-shaft	X	X

Sacrum	
maximum length	X
maximum breadth	X

Radius	L	R
maximum length	X	X
physiological length	X	X
minimum circumf.	X	X
transverse diam. mid-shaft	X	X
ant-post. diam. mid-shaft	X	X

Ulna		
maximum length	X	X
minimum circumf.	X	X
physiological length	X	X
ant-post. diam. mid-shaft	X	X
transverse diam. mid-shaft	X	X

Scapula		
maximum breadth	X	X
maximum height	X	X

Innominate		
coxal height	X	X
iliac breadth	X	X
cotylo-sciatic breadth	X	X

Fibula		
maximum length	X	X

(for all measurements except the scapula, refer to Olivier, 1969, Practical Anthropology; for the scapula, refer to Montagu, 1960, A Handbook of Anthropometry.)

(Put x if it is not possible to obtain measurement.)

site number 3SJA64
burial number 11

Minor morphological traits in the human skull-----non-metric trait listing developed by Berry and Berry (1967, J. Anat. 101:361-379)

1. Highest nuchal line present: yes no NA
2. Ossicle at the lambda: yes no NA
3. Lambdoidal suture ossicle present: none 1 more____ NA
4. Parietal foramen present: right only left only both none NA
5. Bregmatic bone present: yes no NA
6. Metopism: yes no NA
7. Coronal suture ossicle present: none 1 more____ NA
8. Epipteric bone present: right only left only both none NA
9. Fronto-temporary articulation: right only left only both neither NA
10. Parietal notch bone present: right only left only both neither NA
11. Ossicle at asterion: right only left only both neither NA
12. Auditory torus present: right only left only both neither NA
13. Foramen of Haschke present: right only left only both neither NA
14. Mastoid foramen ex-sutural: right only left only both neither NA
15. Mastoid foramen absent: right only left only both neither NA
16. Posterior condylar canal patent: right only left only both neither NA
17. Condylar facet double: right only left only both neither NA
18. Precondylar tubercle present: right left both central neither NA
19. Anterior condylar canal double: right left both neither NA
20. Foramen ovale incomplete: right left both neither NA
21. Foramen spinosum open: right left both neither NA
22. Accessory lesser palatine foramen present: right left both neither NA
23. Palatine torum present: yes no NA
24. Maxillary torus present: right left both neither NA
25. Zygomatico-facial foramen: right left both neither NA
26. Supraorbital foramen complete: right left both neither NA
27. Frontal foramen present: right left both neither NA
28. Anterior ethmoid foramen exsutural: right left both neither NA
29. Posterior ethmoid foramen absent: right left both neither NA
30. Accessory infraorbital foramen present: right left both neither NA

APPENDIX D

ARTIFACT DESCRIPTIONS

Buttons:

Type 1 Metal button, slightly raised ridge around the central area on the front side. Between the edge and central area a cross-hatch design decorates the front side. The front side is flat and the back side is slightly convex. 1.65 cm in diameter. 7 total.

Type 2 4-hole, sew through, cream colored glass. Cental area is recessed on the front side. Front side is slightly convex with a ridge around the outside margin while the back slopes from a flat cental area towards the edges. 1.1 cm in diameter. 5 total.

Type 3 4-hole, sew through, white glass. Front side has recessed central area and sloping sides while the back is flat in the central area and the sides slope to the edges. 1.75 cm in diameter. 1 total.

Type 4 Cloth covered metal. these appear to be 2 piece buttons, the outer shell is cloth covered and fits over the inner portion of the button. The cloth covering the front is cotton, either corduroy or velveteen. The back has a protrution of rusted and corroded metal in the central area where the attachment would be. Means of attachment could not be discerned. 1.44-1.49 cm. in diameter. Variation in measurements resulted from differential deterioration. 17 total.

Type 5 Identical to type 2, but lack ridge on the front side and white rather than cream colored. 1.1 cm in diameter. 2 total.

Type 6 4-hole, sew through white glass. Both sides have convex surfaces but differ in the central area. The front central area is recessed while the back is flat. 1.4 cm in diameter. 1 total.

Type 7 4-hole, sew through, light brown bone. Overall this button is dish shaped, the front has a recessed central area through which the holes were drilled while the central area of the back is slightly raised. 1.5 cm in diameter. 1 total.

Type 8 White glass collar button. Diameter of large end 1.2 cm, diameter of small end 0.8 cm, length 1.2 cm. 1 total.

Type 9 4-hole, sew through, white glass. Front slopes to edges from the upper rim of central recessed area while the back is flat. 0.98 cm in diameter. 1 total.

Type 10 4-hole, sew through, white glass. Same as type 9 except it is 1.1 cm in diameter. 3 total.

Type 11 4-hole, sew through, metal. Front is recessed while the back is corresponding convex shaped. 1.4 cm in diameter. 1 total.

Type 12 4-hole, sew through, brass. The front central area is recessed while the back is correspondingly convex shaped. Between the edge and the central area of the front side a cross hatch design is present. 1.5 cm in diameter. 1 total.

Type 13 Fabric covered brass. 1.57 cm in diameter. Attachment was not discernible due to deteriorated condition. 1 total.

Type 14 Cloth covered metal. These are identical to type 4 except for size. 1.9 cm in diameter. 4 total.

Type 15 Copper, celluloid collar button. The smaller ball shaped end is copper, this articulates with a copper stem which extends to the larger opposite end where a flat base was formed over which a celluloid cover was attached. Diameter of large end, 1.32 cm, diameter of small end, 0.75 cm, length 1.38 cm. 1 total.

Type 16 Metal, attachment uncertain. The front side has a recessed central area while the back correspondingly extends away from the body of the button. These are similar to type 4 but do not have a fabric cover. 1.5 cm in diameter. 3 total.

Type 17 Metal, attachment uncertain. These are identical to type 16 except they are larger. 1.9 cm in diameter. 3 total.

Nails:

In general there are 2 categories of nails, round and square. Within the square nail category further distinctions were made based on overall size. This resulted in 10 types of square nails.

Within the round nail category 3 diffrent kinds of nails, common, finishing, decorating, were noted before size distinctions were made.

Round:

Type 1 Common nail, 2.9 cm in length. 5 total.

Type 2 Common nail, 3.9 cm in length. 40 total.

Type 3 Common nail, 4.0 cm in length. 2 total.

Type 4 Common nail, 3.2 /4.65 if straight. These had been driven through the boards and had the ends bent over. 40 total.

Type 5 Common nail, 4.75 cm in length. 46 total.

Type 6 Common nail, 4.9 cm in length. 89 total.

Type 7 Common nail, 5.1 cm in length. 3 total.

Type 8 Common nail, 6.0 cm in length. 30 total.

Type 9 Common nail, 6.3 cm in length. 15 total.

Type 10 Common nail, 6.8 cm in length. 1 total.

Type 11 Common nail, 7.8 cm in length. 2 total.

Type 12 Finishing nail, 4.9 cm in length. 9 total.

Type 13 Finishing nail, 5.0 cm in length. 13 total.

Type 14 Finishing nail, 6.3 cm in length. 4 total.

Type 15 Decorative nail, 1.63 cm in length. 5 total.

Type 16 Fragments unidentifiable, 85+ total.

Square:

Type 1 Machine cut, 3.9 cm in length. 37 total.

Type 2 Machine cut, 4.9 cm in length. 1 total.

Type 3 Machine cut, 5.2 cm in length. 30 total.

Type 4 Machine cut, 5.6 cm in length. 6 total.

Type 5 Machine cut, 6.4 cm in length. 19 total.

Type 6 Machine cut, 6.29 cm in length. 29 total.

Type 7 Machine cut, 7.8 cm in length. 27 total.

Type 8 Machine cut, 8.2 cm in length. 1 total.

Type 9 Machine cut, 10.1 cm in length. 2 total.

Type 10 Fragments 18 total.

Screws:

Screws are distinguished on the basis of overall length. This resulted in 7 types. Those screws which were integral parts of other artifacts or were still attached to other artifacts and could not be separated or were too deteriorated to remove or measure are described with those artifacts.

Type 1 1.2 cm in length. 4 total.

Type 2 1.63 cm in length. 24 total.

Type 3 1.7 cm in length. 3 total.

Type 4 1.78 cm in length. 6 total.

Type 5 2.0 cm in length. 1 total.

Type 6 4.4 cm in length. 4 total.

Type 7 5.0 cm in length. 4 total.

Coffin/Casket Hardware:

Type 1 Flat triangular shaped metal plate with a hole at either end where screws were used to attach the plate to the coffin. 5.7 cm x 1.2 cm x 0.2 cm. (See screw type 3.) 4 total.

Type 2 Flat rectangular metal plate with one end bent perpendicular and then parallel to the other end to form roughly an s-shape. The unmodified end was secured to the coffin by 2 screws. 3.9 cm x 1.2 cm x 0.2 cm. 2 total. (See screw type 1)

Type 3 Flat triangular shaped metal plate with the constricting end bent perpendicular to the mid-section. The larger end has been bent in the opposite direction to constricting end but at a lesser angle, the large end also has a hole in it through which a screw was used to attach this to the coffin. 3 total. (See screw type 4).

Type 4 Wire bent around a screw (Screw type 5) with the ends bent perpendicular to the midsection. This is similar in configuration to type 3. 1 total.

Type 5 2 piece metal latch, each piece was secured to opposite facing pieces of wood via 2 screws. Bottom piece is rectangular in shape, 3.10 cm x 1.49 cm x 1.5 cm. The other piece is a half circle 2.91 cm in diameter and 1.5 cm thick. Only rusted posts remained of the screws. 2 total.

Type 6 2 piece sliding, metal latch with locking mechanism. The rectangular shaped, female portion was held to the wood via 2 screws and was held in a permanent fixed position. While the male portion was circular at one end and rectangular at the other and appears to have slid over the female portion when being engaged. The circular end held the articulating male piece and was secured to the wood with 3 screws while the opposite end was free and held the articulating locking mechanism. Female part 9.2 cm in length. Male part 8.2 cm. 2total. (Figure 54).

Type 7 These were metal latches identical to hardware type 6 except they lacked the locking mechanism. Female part length, 6.3 cm male part length, 2.8 cm. 2 total. (Figure 54).

Coffin/Casket Handles:

Type 1 Silver plated cast metal. Each handle consisted of 2 plates which attached to the coffin with 2 screw (Screw type 2) in each plate. Between each plate, connecting the two plates, was the handle proper portion of the handle. Each plate was cast in the

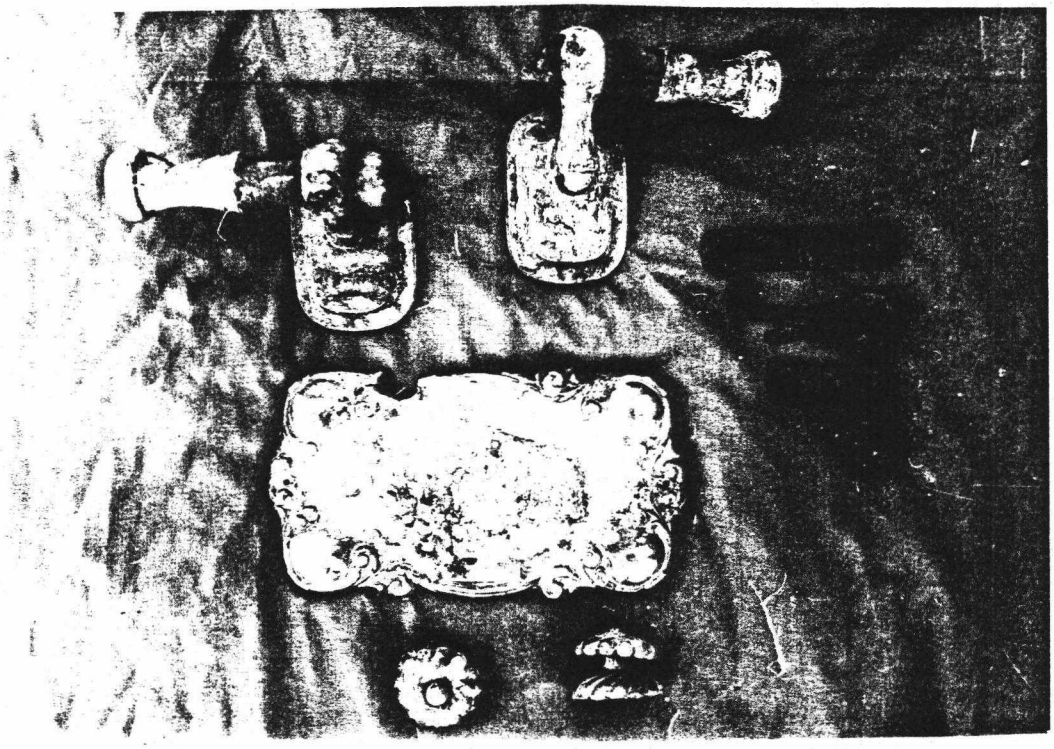


Figure 54. Casket handle, ornaments and latching mechanisms from burial eleven, Collings, Cemetery.

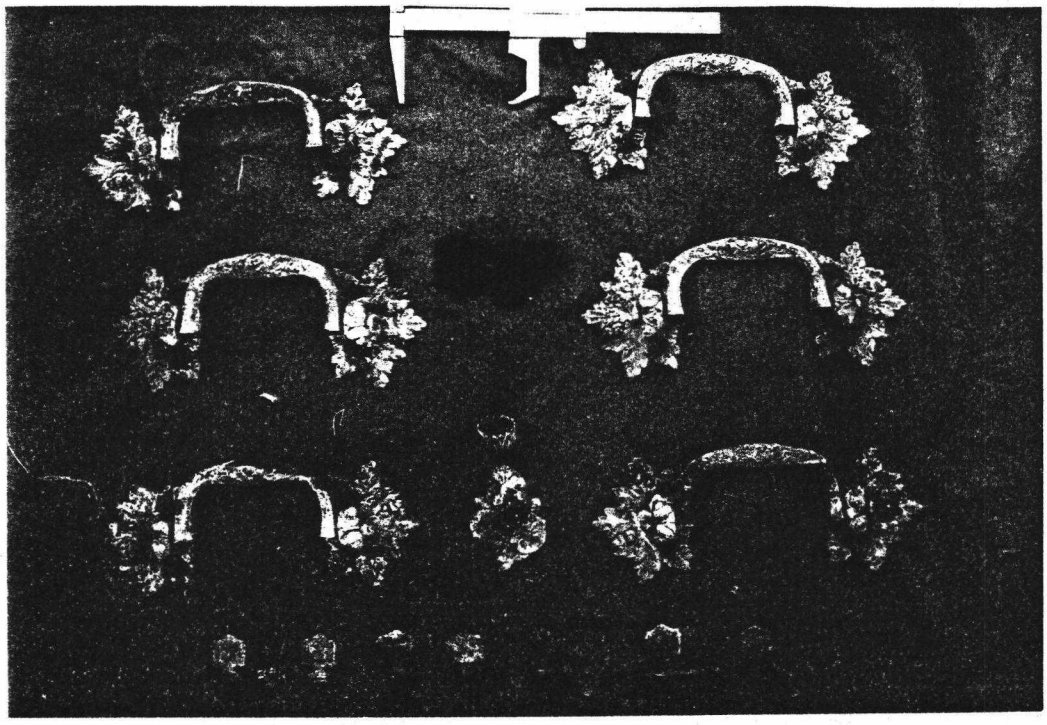


Figure 55. Casket handles, ornaments, decorative fasteners and bowtie, burial seven, Collings Cemetery.

form of a leaf and decorated with acorns. The top surface was a positive relief while the back was a negative relief of the front. On the back side of the leaf sape numbers were cast, their function has not yet been determined. The handle portion proper was decorated on the front side with leaf impressions and two clasping hands while the back had numbers cast on it. The handle portion was attached to the two plates via a pin type hinge. They too had been silver plated. The diffrences between the handles from burials 5 and 7 were reflected in the location of the numbers on the back side of the handles and in a slight modification of the back side of the handle proper portion. The front side of the handles were identical in every respect. Length 21.8 cm width of platas 8.5 cm. 12 total. (Figures 55 and 29).

Type 2 Silver plated cast metal with a wooden handle portion, part of which was covered with cloth (Cloth type 4). These handles consisted of 2 plate portion attached directly to the coffin. Attached to these plates via a hinge was a metal arm which held the wooden handle in proper position (See wood type 5.) The metal plates were a plain finish with no decorations. On the reverse side of the plates a patented date, Sept. 3, 1899, and company name had been cast (S.M.C. Co.). Each plate was attached to the coffin by means of 2 screws in each plate. The deteriorated condition prevented any accurate measurements of the screws. (Figure 54)).

Coffin/Casket Ornaments:

Type 1 2 piece silver plated cast metal. The basal piece was round and pedestal shaped, the top piece consisted of decorative scroll shaped, ornament with a threaded post attached to the bottom. The threaded post extended down through a hole in the pedestal base and screwed into the coffin holding both pieces to the coffin. On the under side of the pedestal portion a 3 digit number was cast. Nominal dimension: Basal portion, 4.34 cm diameter, 1.29 cm in height. Top portion, 3.95 cm x 1.81 cm. 1 total.

Type 2 2 piece silver plated cast metal. The basal portion is a rectangular saped plate with a scroll design on the top surgace in a postive relief, the

underside was negative relief of the top and had the name "Elgin" cast on it. "Elgin" is the name of a casket company founded in 1903 (Jeff Ellis). The basal plate was secured to the coffin with 2 decorative nails (Nail type 15). The top piece consisted of a roughly rectangular upper portion decorated with a scroll type design. Attached to the bottom of the upper portion was a threaded post. This post passed through a hole in the basal piece and screwed into the coffin. This ornament may have served to hold the coffin lid in place. Nominal dimensions: Basal piece 7.72 cm. x 2.37 cm. Top piece, 5.39 cm x 2.60 cm. 6 total. (Figure 56).

Type 3 These were similar to ornament type 2 except that the basal piece was silver plated stamped copper and decorated with geometric shapes. The top piece was identical to type 2. Dimensions of basal piece: 7.0 cm x 2.5 cm. 7 total. (Figure 41)).

Type 4 2 piece silver plated cast metal. The basal section was round and pedestal shaped with a scalloped edge from the trough section between the crest of the scallops a line edge with circular dots extended up to approximately the midsection. The top section section is circular with scalloped edges and decorated in the same design as the basal portion. Attached to the underside of the top piece is a threaded post which extended down through the basal section to secure both pieces to the coffin. In profile the top section is mushroom shaped. Dimensions: Basal piece, diameter of bottom 4.30 cm, 2.37 cm in height. Top piece 3,25 cm in diameter. 1 total. (Figure 54).

Type 5 2 piece silver plated cast metal. The basal piece is shaped and decorated like a group of lily pads. The top surface is a positive relief while the bottom is a negative relief of the front. The bottom surface has the "No, 30" cast on it. The top piece is shaped and decorated like a lily flower. The bottom of the piece has a post attached to it which passed through the basal portion. The bottom of the post was missing so it is not known if this was a threaded post. 1 total. (Figure 57).

Type 6 Nail with a decorated dome shaped copper top. The copper top was decorated with a star shaped design.

Type 7 Silver plated cast metal, roughly rectangular in shape. The margins of the plaque were decorated

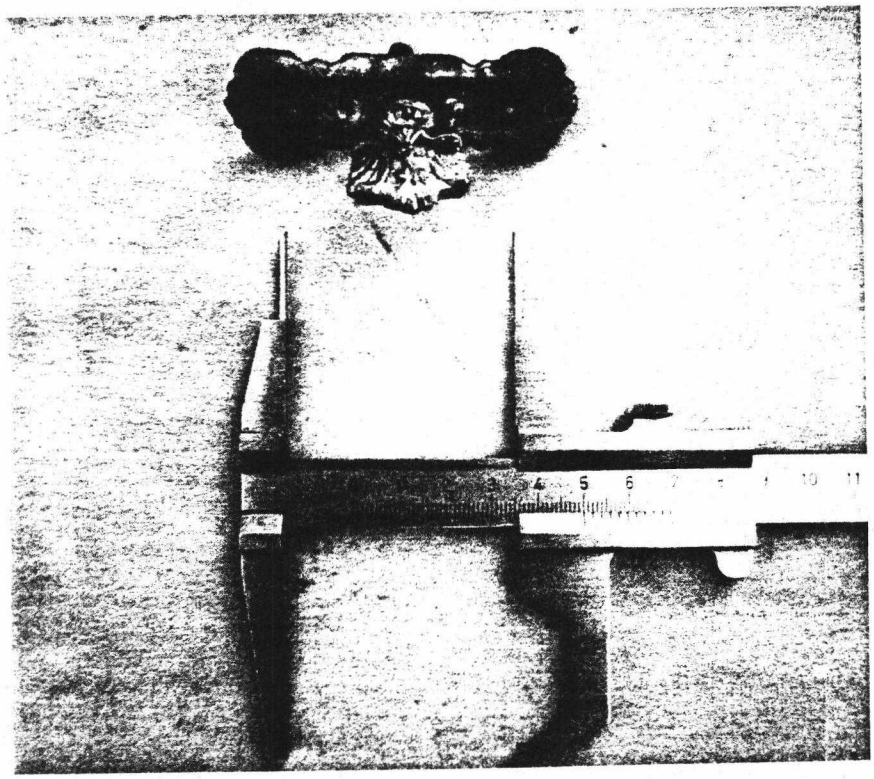


Figure 56. Decorative fastener, burial five, Collings Cemetery.

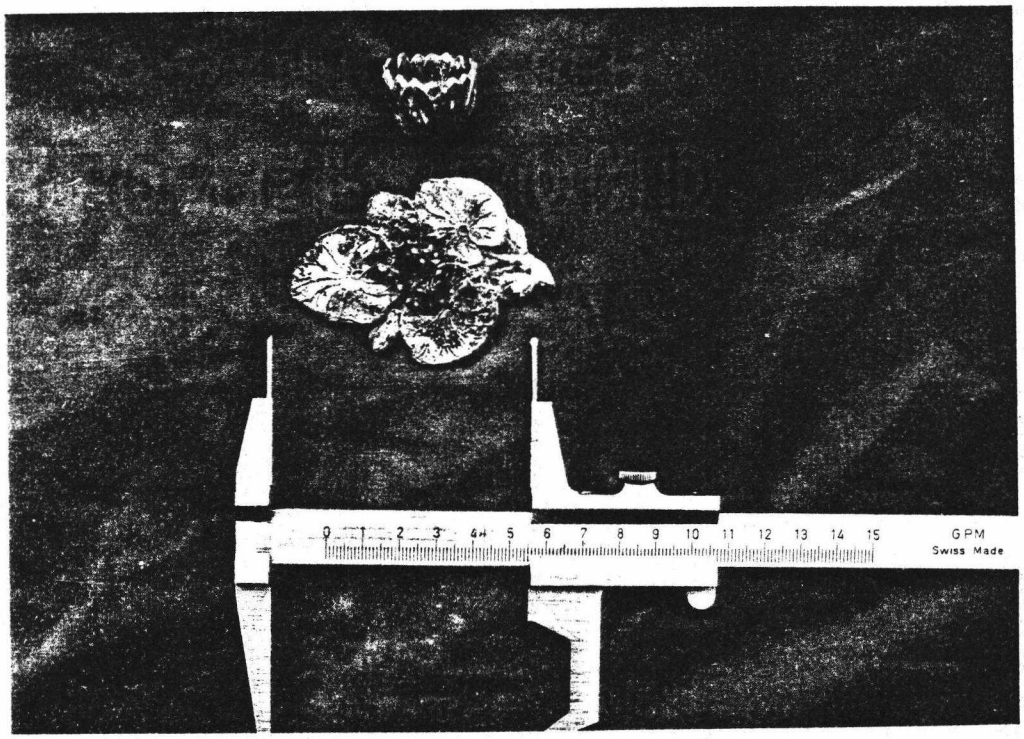


Figure 57. Ornament, burial seven, Collings Cemetery.

with a floral pattern while the face of the plate had the words "At Rest" engraved on it. The reverse side was a negative relief of the front along the margins, in the central area a 5 digit number had been cast. The plaque was held in place by 2 nails, positioned at opposite ends along the long axis. 20.8 cm x 9.88 cm. 1 total. (Figure 29).

Type 8 Silver plated cast metal, roughly rectangular in shape. The margins were decorated with a scroll type design while the face of the plate had the words "At Rest" engraved on it. The reverse side was a negative relief of the front along the margins but was plain in the central area. The plaque was held in place by 2 nails positioned at opposite ends along the long axis. 20.3 cm x 11.4 cm. 1 total. (Figure 58).

Miscellaneous Metal Objects:

Type 1 Cast metal cuff link consisting of 2 circular balls, with a band encompassing the circumfrence at the mid-point. A nipple shaped protrusion is located at the extreme end of each ball. Connecting the two balls was a curved culindrical rod. 2.32 cm in length. Diameter of balls 0.77 cm. 1 total.

Type 2 Cast metal cuff link consisting of a circular ball attached to a curved rod which in turn attached to a flat plate. The shape of the plate is not known due to deteriorated condition. 1.6 cm in length, diameter of ball 0.69 cm. 1 total.

Type 3 Tin can fragments with soldered seams. The best preserved appears to be an evaporated milk can. At least 3 total.

Type 4 Metal belt buckle with 2 tongues. 3.0 cm x 2.2 cm. 1 total.

Type 5 Two U.S. silver half dollars dated 1867 and 1871. no mint mark. Condition: fine. Front side--liberty seated on a rock wearing a Greek chiton. Reverse side--eagle wings displayed inverted above eagle a roll on which "IN GOD WE TRUST" is rendered.

Type 6 Unidentifiable miscellaneous metal fragments.

Figure 58. Casket plaque, burial eleven, Collings Cemetery.

Fabric:

The Clothing, Textiles and Related Departments of Oregon State University performed the fabric and weave identification.

Type 1 Bow tie fragment, burial 7, material linen.

Type 2 Cloth covering buttons, burials 1,2,5,7,11. Material cotton, either corduroy or velveteen.

Type 3 Coat, burial 4, twill weave, material wool.

Type 4 Casket covering and handle covering, burial 11, twill weave, material wool.

Type 5 Bow tie, burial 11, material either cotton or wool.

Type 6 Probable long underwear, burial 11, white cotton knit.

Type 7 Covering for coffin accessories, burial 11, plain weave, wool.

Type 8 Clothing fragment, burial 1, decorative weave, material wool.

Type 9 Clothing, burial 2, rib variation weave, material cotton.

Type 10 Bow tie, burial 5, silk.

Type 11 Clothing, burial 1, rib variation weave, material cotton.

Glass:

Type 1 Egg shaped piece of glass. Covered the head area of the coffin in burial 5. 60.0 cm x 39.5 cm. 0.88-0.93 inches thick. (Figure 30).

Type 2 Pickle jar with faceted 8 sided base and a round top. Height 19.8 cm,base width 7.3 cm, top diameter 5.37 cm (Putman 1965: 191).

Wood:

The identification of wood fragments was carried out by Dr. Robert Krahmer, Forest Products, Oregon State University

Type 1 Lodgepole/Ponderosa Pine. Casket and cap boards, burial one, Collings Cemetery. Coffin, burial two, Collings Cemetery. Casket, burial four, Collings Cemetery.

Type 2 Sugar/Western White Pine. Casket, burials six and nine, Collings Cemetery. Casket, burial two, Watkins Cemetery.

Type 3 Western Red Cedar. Grave liner, burial five.

Type 4 Hemlock/True Fir. Casket, burial eleven.

Type 5 Sweet Gum. Casket handle, burial eleven

Type 6 Spruce. Casket burial five, Collings Cemetery. Paint was adhering to a number of the fragments. There are two layers, a red undercoat and a dark brown top coat. Casket burial seven, Collings Cemetery. Paint was adhering to a number of the fragments. There are three layers, a red under coat, a blue middle coat, and a white top coat.
Casket burial eleven, Collings Cemetery.

Bone:

Type 1 Deer humerus diaphysis from fill of burial nine.

Seeds:

Type 1 Himalaya Blackberry, Rubus discolor, recovered from the sacral region of burial four.

APPENDIX E

Department of Anthropology

Corvallis, Oregon 97331 (503) 754-4515

Date: October 23, 1980

From: Anthony B. Walters

To: Chris Jenkins, Dr. David Brauner, and Dr. Thomas Hogg

Subj: Seed Identification of Seeds Recovered from Burial #4, Collings Cemetry

This is my final report to you pertaining to the identification of several seeds recovered from the sacrum of a skeleton (Collings Cemetry, Burial #4).

Final Identification Himalaya Berry (Rubus discolor Weihe & Nees)

Methods of Identification Comparative analysis of the identified seeds of several species of Rubus with the recovered seeds. Initially, consideration had to be given to all foods which when eaten would normally result in the introduction of whole seeds into the intestinal tract (specifically, into the colon area), including both indigenous and introduced, cultivated species. Many plants were ruled out on the basis of general configuration of the seeds and on the macromorphology of the seed pericarp. Some were considered inconsequential because they were seldom used as a food resource. Some seeds were ruled out on the basis that they would not have remained so well preserved. Other seeds were ruled out on the basis of comparison with photomicrographs. Still other plants were eliminated on the basis that their fruits were seldom eaten in quantity.

Equipment and Supplies 1) Dissecting-Binocular Microscope -- Used for close observation of the seeds.
2) Bausch & Lombe (18 x 34) Jeweler's Loupe -- Used for initial observations.
3) Forceps -- Used for handling and turning the seeds while observing them.
4) Probe -- Used to move the seeds during comparative analysis under the microscope.
5) Two, small, glass, specimen bottles -- Used to clean and rinse seeds in.
6) Muriatic Acid (HCl Concentrate) -- Used for cleaning the seeds.
7) Distilled Water -- Used to rinse the seeds.
8) Absorptive, Abrasive Cloth -- Used to dry and abraid seed surfaces in order to remove the surrounding membranes.
9) Comparative Identification Wheel -- A drawing of a wheel into which the seeds were placed for final comparative analysis.
10) Several Specimens Envelopes -- Used to place seeds in after comparative analysis.

Materials for Comparative Analysis

A. Recovered seeds from Burial #4.
B. Identified Materials
1. Fresh material (seeds)
a. Rubus discolor Himalaya Berry
b. R. laciniatus Evergreen Blackberry
c. Sambucus cerulea Blue Elderberry
2. Herbarium specimens (Courtesy of Dr. Kenton Chambers, O.S.U. Herbarium, Department of Botany and Plant Pathology)
a. Rubus leucodermis Blackcap or Black Raspberry
b. R. ursinus Trailing Blackberry
3. Photomicrographic Comparisons (Reference used: Schopmeyer, C. S. 1974. Seeds of Woody Plants in the United States. Agriculture Handbook No. 450. Forest Service, U. S. Department of Agriculture, Washington, DC. The specific page numbers coinciding to a specific species of seed are given after the common names in the following list.)

Amelanchier alnifolia -- Saskatoon Serviceberry -- p. 213
A. florida -- Pacific Serviceberry -- p. 213
Berberis nervosa -- Dwarf Oregon-grape -- p. 248
Crataegus douglasii -- Black Hawthorn -- p. 358
Gaultheria shallon -- Salal -- p. 424
Lonicera involucrata -- Black Twinberry -- p. 516
Morus alba form tatarica -- Russian Mulberry -- p. 545
M. rubra -- Red Mulberry -- p. 545
Rhamnus purshiana -- Cascara or Chittim -- p. 705
Ribes cereum -- Wax Currant -- p. 723
R. lacustre -- Prickly Currant -- p. 723
R. sanguineum -- Redflowering Currant -- p. 723
R. viscosissimum -- Sticky Currant -- p. 723
Rubus laciniatus -- Evergreen Blackberry -- p. 741
R. macroretalus (syn. ursinus) -- Trailing Blackberry -- p. 741
R. occidentalis (syn. leucodermis) -- Blackcap or Black Raspberry -- p. 741
R. procerus (syn. discolor) -- Himalaya Berry -- p. 741
R. spectabilis -- Salmonberry -- p. 741
Sambucus callicarpa -- Pacific Red Elderberry -- p. 755
S. cerulea -- Blue Elderberry -- p. 755
Solanum dulcamara -- Bittersweet Nightshade -- p. 777
Sorbus sitchensis -- Sitka Mountain-ash -- p. 781
Symphoricarpos albus -- Snowberry -- p. 788
Taxus brevifolia -- Pacific Yew -- p. 800
Vaccinium ovalifolium -- Oval-leafed-huckleberry -- p. 842
V. ovatum -- Evergreen-huckleberry -- p. 842
Viburnum spp. -- Viburnum -- p. 847
Vitis labrusca -- Fox Grape -- p. 853

Final Selection of Species All genera, except Rubus, were eliminated on the basis of configuration as determined from reference photomicrographs. Final selection within the genus Rubus was based on the following criteria:

1. Configuration and type or amount of seed-surface ornamentation.
2. Size, and expected size reduction over a period of time due to leaching and microbial decomposition.
3. Durability of seed pericarp based on pericarp thickness when fresh as compared to size lost after drying.
4. The amount of use as a food.

The final selection (Rubus discolor) was based on a combination of configuration, seed-surface ornamentation, fresh size and anticipated size loss, and good pericarp durability.

Other species within the genus were eliminated for the following reasons:

Rubus laciniatus -- Evergreen Blackberry -- Wrong configuration and type of ornamentation.

R. leucodermis -- Blackcap or Black Raspberry -- Due to fresh size and known size loss, based on study of herbarium material collected in the 1940's, and lack of sufficient pericarp durability.

R. parviflorus -- Thimbleberry -- Seldom ate in sufficient quantities to result in the quantity of seeds which were found in this burial.

R. spectabilis -- Salmonberry -- Wrong configuration and type of ornamentation. Ornamentation not well enough defined.

R. ursinus -- Trailing Blackberry -- Wrong size and amount of size lost during dehydration, and insufficient pericarp durability.

Of the species of Rubus, it was most difficult to decide between Rubus discolor, R. laciniatus, R. leucodermis, and R. ursinus.

Manhours Involved in This Project When everything has been considered, there were 8 hours of time involved, partly due to a current lack of immediately available, comparative, seed material, lack of specific references on our shelves, and locating equipment. The total seed preparation, identification, and analysis time involved was 4.5 hours.

End of Report

Thank you for the opportunity to apply some of my knowledge in a way which was useful to you and to the department. I remain--

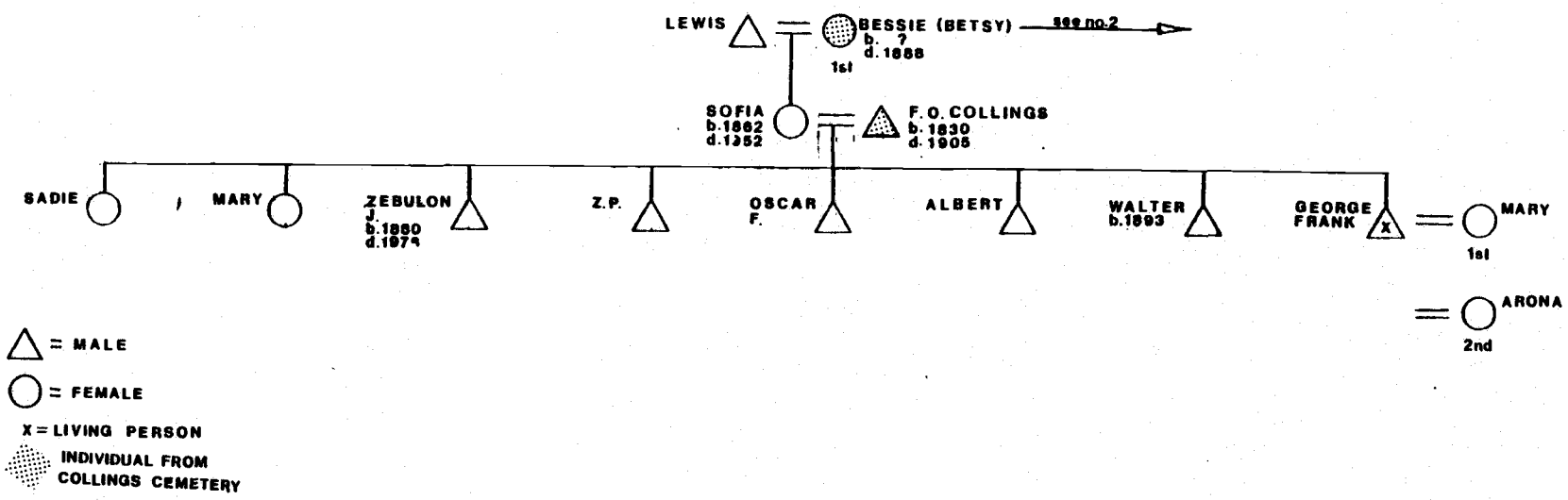
Sincerely,

Signature redacted for privacy.

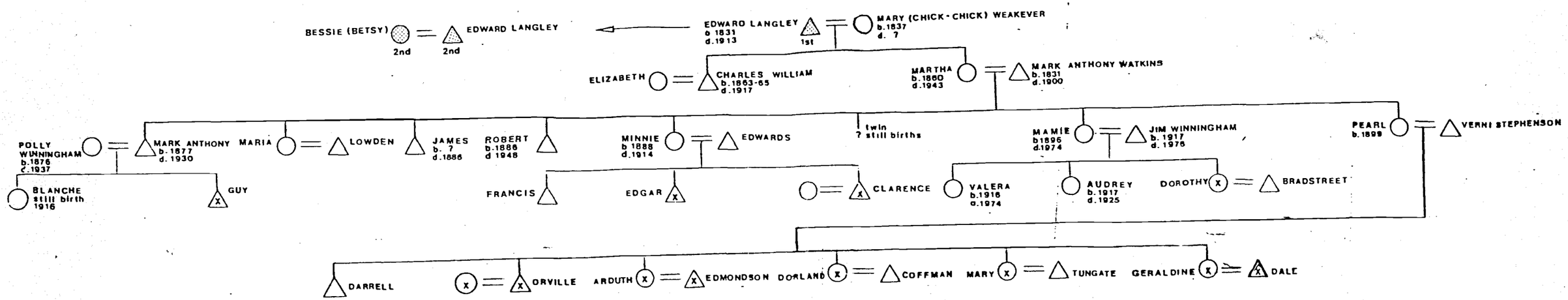
Anthony B. Walters
Graduate Teaching Assistant
Ethnobotanist

APPENDIX F

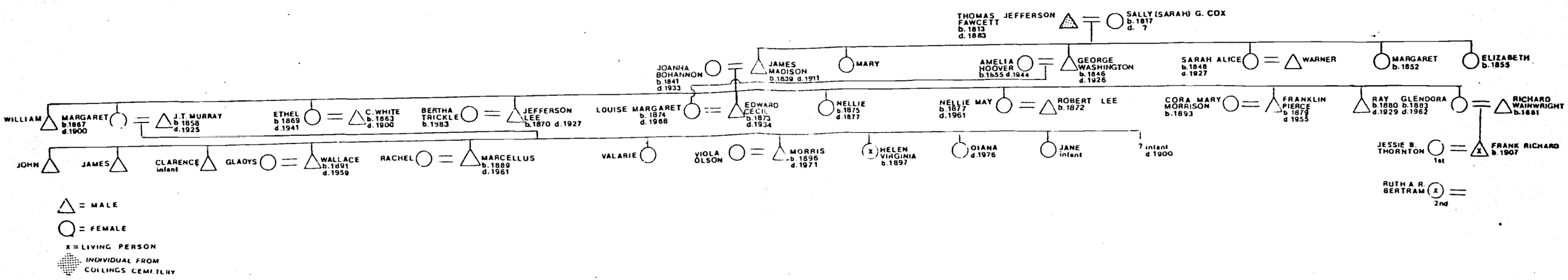
(1)
COLLINGS GENEALOGY



(2)
LANGLEY GENEALOGY



(3)
FAWCETT GENEALOGY



△ = MALE

○ = FEMALE

x = LIVING PERSON

INDIVIDUAL FROM COLLINGS CEMETERY