

Human Remains from Voegtly Cemetery, Pittsburgh, Pennsylvania

DOUGLAS H. UBELAKER and ERICA B. JONES

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Smithsonian Institution

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Douglas H. Ubelaker and Erica B. Jones

EDITORS

WITH

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ASSOCIATE EDITOR FOR ARCHEOLOGY



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ABSTRACT

Douglas H. Ubelaker and Erica B. Jones, Editors, with Diane Beynon Landers, Associate Editor for Archeology. Human Remains from Voegtly Cemetery, Pittsburgh, Pennsylvania. *Smithsonian Contributions to Anthropology*, number 46, 224 pages, 130 figures, 24 tables, 3 appendices, 2003.—In 1987, stimulated by planned highway construction, an archeological survey located the cemetery associated with Voegtly Church and Parsonage, which was dated to between 1833 and 1861. An intensive excavation in 1987 located 724 features thought to represent human burials and recovered the remains and associated artifacts. Analysis of the human remains revealed highly variable preservation with extensive weathering, especially among subadults. Cultural alterations on the teeth include evidence for pipe smoking. Living stature averaged about 160 cm (5 ft 3 in) for females and 170 cm (5 ft 7 in) for males. Pathological conditions included trauma, infection, extreme arthritis, and tuberculosis. Dental health was generally poor, with high frequencies of dental caries, alveolar abscessing, antemortem tooth loss, and dental hypoplasia. Mortality rates were high and life expectancy was generally low, especially among infants and children.

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Human Remains from Voegtly Cemetery, Pittsburgh, Pennsylvania

Introduction

Douglas H. Ubelaker and Diane Beynon Landers

The important contributions of historical archeology are frequently linked to two factors: (1) historic sites can provide information that is not always available from written records; and (2) communities seek to preserve historical resources and to learn as much as possible about their history.

As population centers expand and rebuild, disturbance of historic-period archeological resources by modern construction is inevitable. Response to this disturbance varies, depending on the applicable laws, community concern, and available resources.

The project reported herein demonstrates how much can be learned about the past when resources are brought to bear on a historic site in the path of modern construction. In this case, planned highway construction led to the discovery of a large, historic urban cemetery, with burials dating between 1833 and 1861. The cemetery had been associated with the Voegtly Evangelical Lutheran Church (Figure 1) and represented a Swiss-German population of Northside Pittsburgh, Pennsylvania (Figure 2). Memories of this cemetery faded with expansion to a “new” off-site cemetery in 1861 and a 100-year cycle of church razing, rebuilding, additions, and subsequent disbandment. In 1987 construction monitoring for the new high-

way led to the unexpected discovery and analysis of 724 nineteenth-century features thought to represent burials.

Although the individual identities of the remains in these burials are largely unknown, they collectively tell us a great deal about life and death in nineteenth-century urban America, where social and occupational diseases and other aspects of morbidity were inextricably interwoven into the fabric of the community. This report provides a cultural-historical context for these individuals, important to the interpretation of both the archeological materials and the biological remains of the cemetery.

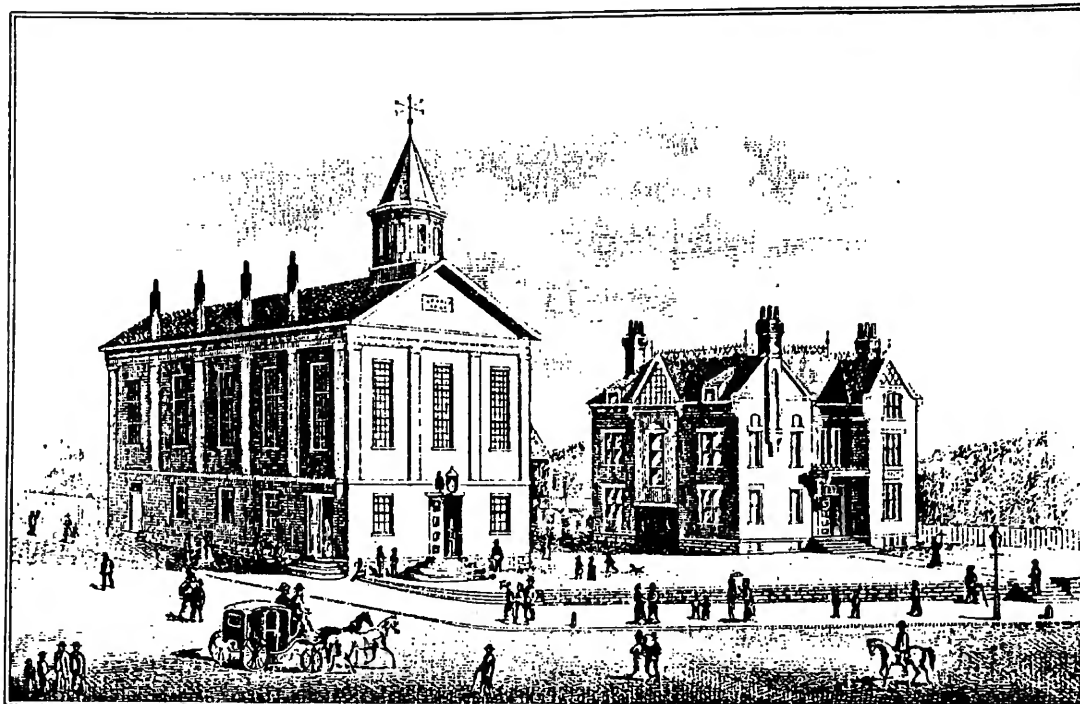
Interstate 279/579 Highway Project

Between 1979 and 1981, the Pennsylvania Department of Transportation (PaDOT) constructed the East Street Valley Expressway (I-279/I-579) to link downtown Pittsburgh with Interstate 79, where suburban growth north of the city had been steadily expanding. Because this section crossed historic Northside Pittsburgh, during its planning PaDOT and the Federal Highways Administration sponsored an archeological and records survey to determine what archeological resources might be affected by the proposed construction.

The initial archeological survey was conducted by researchers at the Carnegie Museum of Natural History in 1980 (Lantz et al., 1980). Their review of corresponding documents and their limited archeological survey produced relevant information on eighteenth- and nineteenth-century development in the area, including the location of the Pennsylvania Mainline Canal's Old Allegheny Basin and associated lift and weight locks. This work led to a construction monitoring program by Parsons-Brinckerhoff Construction Services (PBCS) for other archeologically sensitive areas in the highway project right-of-way. In 1984, GAI Consultants, Inc. (GAI), joined the effort to provide archeological excavation and background research.

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Ansicht der Ersten Pent. Ev. Ker. Kirche und Pfarrhaus.
 KIRCHE ERBAUT 1849. PFARRHAUS ERBAUT 1882.

FIGURE 1.—Lithograph of Voegtly Church in 1883.

After the Pennsylvania Mainline Canal was documented by a Historic Architectural Engineering Recordation, and other areas affected by the highway construction were surveyed, PaDOT shifted its attention to the final highway segment (LR 1040-1), where planned construction crossed paths with the former grounds of the Voegtly Church and Parsonage.

Cemetery Excavation and Smithsonian Institution Involvement

Except for the partial foundations of the original church and parsonage, and the asphalt remnants of a parking lot paved in 1950, the Voegtly Church and Parsonage parcel seemed relatively clear of obstructions. During construction monitoring by PBCS in the spring of 1987, however, five buried coffins and associated skeletal remains were discovered. Because grave-stones were not visible and the find represented an unmarked cemetery of indefinite size and complexity, only archeological excavation could define the cemetery limits and allow for proper examination of its contents. Consequently, the project was expanded so that GAI's archeological team could conduct a more intensive archeological excavation.

To stay ahead of daily construction activities, GAI coordinated its work with PaDOT. GAI supervised 20 to 50 technicians and osteologists who worked 10-hour days, six days per week, from June to September, 1987, by which time all the

graves had been excavated (Figures 3, 4), removed, documented, and packaged.

The Smithsonian Institution's involvement began in July 1987, when PaDOT invited Ubelaker to Pittsburgh to discuss the excavation and potential analysis of the human remains. Ubelaker reviewed the project and agreed to provide skeletal analysis. Beynon Landers, GAI's project director, personally transported the remains to the Smithsonian in 1988.

Preparing the large sample, which contained individuals of highly variable preservation, was a long process that was further hampered by inadequate project funding and by competition for Smithsonian resources from other worthy projects. Because the cleaning and preparation phase necessarily involved many people, a work-completed record for each feature was maintained to document progress and each person's contributions. In the laboratory, all original boxes were inventoried and unpacked, and the remains were cleaned to prepare them for analysis. The cleaning method depended on the condition of the remains: those in excellent condition were cleaned using running water; others were carefully dry-brushed to remove soil and other materials.

The effort to finish the project and prepare the manuscript for publication became intense in January 2000. Once all the data had been collected, the information on the laboratory data sheets was computerized. Reports generated from the entered data were compared against the original data sheets to correct entry errors. The "Individual Burial Descriptions" section of



FIGURE 2.—1830 map of Allegheny, Pennsylvania.

this report was prepared directly from the data sheets. All information in this section was also checked against the original data sheets to correct typing errors. Short summaries of the archaeological information were prepared from information provided by Beynon Landers and were added to each burial description.

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During the effort in 2000, assistance was provided by Kristin Montaperto, Jo McDaniel-Gagne, Anna Popov, Sally Graver, and Mark Galan, all working in Ubelaker's Smithsonian laboratory.

Photographs were taken by Ubelaker, Jane Beck of the Office of Repatriation, Department of Anthropology, Smithsonian Institution (SI), and Smithsonian photographer Don Hurlbert. Marcia Bakry, Department of Anthropology, SI, assisted with the preparation of illustrations for publication. Michael Barnes of the Smithsonian Center for Scientific Imaging and Photography assisted with the preparation of illustrations of radiographs. Lynda Shirley, GAI Consultants, Inc., assisted with typing and editing portions of the manuscript.



FIGURE 3.—General view of Voegtly Cemetery excavations, facing north.



FIGURE 4.—General view of Voegtly Cemetery excavations, facing east.

Cultural History of Old Allegheny Town

Diane Beynon Landers

In 1768 the Commonwealth of Pennsylvania purchased from Native Americans a 3000-acre tract of land in and around the City of Pittsburgh that would, in 1787, become Old Allegheny Town. Designated "Indian Country," early settlement and growth in Old Allegheny Town were deterred by the constant threat of attack by Native Americans and suffered a further setback in 1789, when Pittsburgh, its sister city on the opposite shores of the Allegheny River, was selected over Old Allegheny as the county seat. Old Allegheny Town was overshadowed by Pittsburgh's rapid economic and social development until 1828, with the advent of the Pennsylvania Main Line Canal. The western division of the Main Line Canal rapidly transformed Old Allegheny Town into Pittsburgh's economic and social rival.

The 1830s and 1840s were golden decades for Old Allegheny Town. The Main Line Canal, new bridges, and roadways converted the once-isolated agricultural town into a major link in commercial trade for the East Coast. Success bred success. As Old Allegheny Town attracted early industry in the form of iron mills, forge and machine shops, cotton and woolen mills, and saw mills, its labor needs attracted German, Irish, Scottish, and English immigrants and their families. From a population of about 300 in 1800, Old Allegheny Town grew to 10,089 in 1840, when it was incorporated. Irish and Scotch immigrants settled in the western outlots of Allegheny, the English settled near the original, central public square, and the Germans settled in the eastern lots of Old Allegheny Town.

Swiss-German immigrants were among Allegheny's earliest landowners and prominent families. These included the Swiss-German Richenbach (industrialist), Straub (brewery owner), and Voegtly (millwright) families, who emigrated together from Switzerland in 1822. They encouraged others to follow, and Old Allegheny grew rapidly. Soon, the town was renamed Allegheny City. By 1850 noteworthy residents of Allegheny City included Andrew Carnegie, Stephen Foster, William Phipps, and William Stanton, Abraham Lincoln's Secretary of War.

The Swiss-German folkways, carefully guarded and preserved by these prominent families, characterized and defined

Allegheny City to the extent that use of the German language was demanded in church services and newspapers. For example, the first German newspaper, *Freiheits Freunde*, was published in 1843, and Voegtly Church services and records were exclusively in German as late as 1913.

German and Swiss-German immigrants established their own fraternal societies and communities, such as Deutschtown and the neighborhood of *Schweizer Loch* (Swiss Hole), that mixed residences and businesses. Many Swiss Hole residents probably attended the Voegtly Church and were buried in the cemetery. The Swiss-German ethnic identity was solidified by their social, religious, and economic cohesiveness. The stately Voegtly compound, north of Ohio Street, was representative of the extended family in Victorian Allegheny, where Nicholas H. Voegtly resided on the corner of Chestnut and Ohio, and his son Nicholas, then president of the Pennsylvania Insurance Company, lived at Pike and Chestnut. In 1866 Nicholas Sr. retired, and Nicholas took over the flourishing Voegtly and Kopp sawmill, flour mill, and feed mill businesses. Typical of preindustrial cities, an admixture of residence and workplace, breweries, sawmills, foundries, and cotton mills operated within earshot of their owner's elite residences. Various ethnic groups crammed the second and third stories and rear alleys of storefronts and warehouses. Uncontrolled commercial, industrial, and residential development displayed a medley of land use and living conditions.

By 1885 the neighborhood surrounding the Voegtly Church mirrored the riot of unplanned commercial, industrial, and residential development. The reverent peace of the churchyard was interrupted by the din of stone yards and the nearby racket of saws at brick and lumber yards. Malt houses, carriage works, cigar factories, saloons, feed and flour stores, drug stores, and warehouses all contributed to the commercial cacophony that echoed throughout the community.

When H.J. Heinz moved his now-famous food processing works into Allegheny and virtually across the street from the Voegtly Church, an employment bonanza helped lure thousands of unskilled workers to the neighborhood by the latter part of the nineteenth century.

Ethnic groups who entered the "great melting pot" of early industrial America soon replaced traditional European lifeways with "the American way." By the end of the nineteenth century,

much of Allegheny City's German flavor was lost as unskilled laborers from many different ethnic backgrounds filled residences near their factories, mills, and workplaces. Old Allegheny was soon transformed from an upper-class suburb to an urban-industrial-residential melting pot. Although the Voegtly Cemetery was used exclusively by its Swiss-German parishioners, the evidence for acculturation of ethnic groups between 1830 and 1861 is clearly evidenced by the artifact assemblage found associated with the occupants of Voegtly Cemetery.

The Voegtly Church and Cemetery

Nicholas Voegtly Sr., born in a small German village along the Rhine River in 1769, was described as "small in stature, with black hair, honest, peace-loving, and a good shoemaker" (Beynon, 1989:68). In 1822 the Voegtlys and their neighbors the Richenbachs arrived in Pittsburgh. Four months later these families together purchased 161 acres in Old Allegheny Town from James O'Hara for \$8,400. The land fronted the Allegheny River for several blocks.

The spirituality of the Voegtlys and their Swiss-German neighbors was rooted in the Anabaptist movement in Switzerland. Characterized by their humble lifestyle, the Swiss Anabaptists led simple, pious lives, ruled by the scriptures of the New Testament. Even though clothing designated class distinction for many centuries in Switzerland, many middle- and upper-class Swiss Anabaptists intentionally wore simple styles. Neither Lutheran nor Reformed, the independent spirituality of the Anabaptists laid the foundation for the Evangelical Protestant faith—a new denomination formed exclusively in America

at a time when most Americans were either Presbyterian, Anglican, or Methodist.

Before 1833 the Allegheny Town Germans and Swiss-Germans of the Evangelical Protestant and the Protestant Reformed faiths had no local church of their own; both they and the Pittsburgh Germans worshiped at Pittsburgh's German Evangelical Church. Attendance there was high, and family contributions, based on respective property values, paid for maintenance, preacher salaries, and other expenses.

When the Pittsburgh parish decided to build a larger church, Allegheny Town members expressed their dissatisfaction with the increased costs and the ways in which Pittsburgh leaders of the congregation handled finances. The congregation split into the Pittsburgh group and the Allegheny group, and on 24 April 1833 the First German Protestant Evangelical Church of Allegheny (Voegtly Church) was founded. In May of that year its construction was begun on three-quarters of an acre donated by Nicholas Voegtly. The 30 ft long by 40 ft wide by 20 ft high brick building cost \$957.00 and was dedicated on 13 November 1833. A 12-article constitution stated that "anyone who supports this church shall have the right to attend the church and have the right to a burial place there. No one shall be favored" (Pick, 1883:5). Its first pastor was Carl L. Daubert, under whose six-year ministry the parish built its first school (location on property unknown). By 1842 the parish comprised 150 families, and it was decided to expand the church by 22 ft in length, 10 ft in width, and 5 ft in height. On 27 June 1842 a time capsule (Figure 5) was laid in the cornerstone of this addition. The time capsule contained a short history of the church, a copy of the 1841 church constitution, a list of parish members,



FIGURE 5.—Time capsule and contents from cornerstone of 1842 church addition.

a German songbook, a catechism of the United Evangelical Church, and three American coins. (A dedicatory box excavated from a cut sandstone cornerstone in the foundation of the later 1911 addition contained remnants of these items.)

From 1859 to 1861, under the ministry of their fourth pastor, George Kredel, various parcels of land for a larger cemetery were acquired beyond the church grounds on nearby Troy Hill. A parcel of the Troy Hill graveyard acquired in 1865, under Pastor Carl Schilling's leadership, was called the "new part." Nicholas Sr. died in 1852, at age 93, and his wife, Elizabeth, died two years later at the age of 83. Both were buried in the Voegtly Church Cemetery and remained there until their bodies were transferred to the new public cemetery on Troy Hill (Beynon, 1989:70). Their monument still stands at the present Troy Hill Cemetery in Pittsburgh's Northside.

During a stormy and stressful period of about 10 years, church membership dropped and ministers came and went, serving brief terms until Dr. Bernard Pick's pastorship from 1881 to 1895. Under his tenure, church improvements began with a new vicarage (1882) built on the site of a razed 1849 schoolhouse.

Major improvements and additions waned until 1911, when a new Sunday School room was added as a rear addition to the church under Reverend J.G. Stilli's brief three-year tenure. Rev. Stilli introduced English-language services for the first time in the Church's history.

From this point, a series of short-term pastors characterized the beginning of the decline of the Voegtly Church. The last German-preaching minister left in 1942. From the 1950s on, the church experienced steady decline. Construction of an asphalt parking lot, in 1950, and an outer wall disturbed and completely covered the graveyard.

With the announcement of the East Street Valley Expressway in 1959, the Voegtly Church was notified that it was in the right-of-way for the new highway. The church suffered a drastic decline to its congregation, and with the death of Flora Voegtly in 1972, the church lost its last surviving contact with the Voegtly Family. The parsonage was razed in 1972, and on 4 November 1984 the Pennsylvania Department of Transportation acquired the property. On 8 May 1985 the congregation voted to file Articles of Dissolution, and the Voegtly Church was officially disbanded and razed the same year.

Archeological Excavations and Interpretations

Diane Beynon Landers

The Archeological Excavations

At the onset of archeological excavations, in the summer of 1987, the churchyard appeared as an open, three-quarter-acre parcel with remnants of the 1950 asphalt parking lot. Buildings remaining on the grounds included the foundation of the 1911 church addition, the original foundation blocks of the rear portion of the 1849 church, parts of a brick walkway, and a well behind what was once the 1883 parsonage. There were no gravestones on the property—no indication of how many graves would be encountered or what their state of preservation would be. Contrary to indications by church informants that the entire cemetery had been moved to Troy Hill in the 1860s, only the bodies of Nicholas Voegtly, Sr., and his wife, Elizabeth, had actually been exhumed and interred in the new Troy Hill cemetery (Beynon, 1989). Handwritten in Archaic German script, church burial records had deteriorated with age and were essentially illegible. The fact that there was a cemetery associated with the Voegtly Churchyard had become lost to the collective consciousness of the congregation. No written records or maps could be located that identified the graveyard's existence. The Office of the Register of Wills was contacted to search for birth and death records, but Allegheny City had not initiated such recordation until 1882. Local visitors to the site were interviewed; some surmised that relatives had been buried in the Voegtly Cemetery. Local newspaper advertisements requested information, but no burial records turned up.

In the midst of construction season, timeliness and total recovery dictated the excavation process. Fieldwork began without the benefit of church records, and to meet the compressed construction schedule, fieldwork was conducted 10 hours per day, 6 days per week, from June to September, until each of the individual burials was found and removed.

Using daily field maps, PaDOT surveyors used a computer-aided drafting and design system to construct a site map of grave locations relative to other cemetery features (Figure 6). Mechanical stripping with a Gradall (mechanical excavator) was initiated to delineate grave outlines by soil color and tex-

tural changes. Mechanical stripping ceased when coffin nails were exposed. The grave was then probed to ascertain below-surface depth. The grave outline was quickly troweled before sun exposure could bleach soil color and “erase” the outline. Each burial was assigned a consecutive identification number. Hand excavation began at the skull and continued uncovering the burial downward to the feet. All fill was screened through 0.25 in (0.635 cm) hardware cloth; exposed skeletal material and artifacts were left in situ for mapping and photography before removal.

Burial data (burial number; date; excavator; length, width, and depth below datum; spatial orientation; coffin paint, decorations, hardware, and wood preservation; cultural associations; and osteological information) were recorded on forms adapted from those used by the Smithsonian Institution. Skeletal data were recorded by the field osteologist, who removed the bones in spatial quadrants; bones were individually foil-wrapped, then bagged and labeled by burial number, spatial quadrant, and bone identification before the skeletal package was boxed and labeled for transport. The osteologist then fine-screened the fill and scraped the remainder of the grave. A tag recording burial number, date, and excavator's name was foil-wrapped and placed in the center of the grave to mark completion.

Recovered artifacts included glass, ceramics, clothing and shoes, coins¹, and coffins and related coffin hardware. Artifacts were separated from skeletal remains for analysis and preservation. Burial data were checked and double-checked every night for accuracy, and an inventory was generated so that human remains and their related artifacts could eventually be reunited for reburial at the Troy Hill Cemetery in Pittsburgh, Pennsylvania.

Summary of Archeological Interpretations

In all respects, excavations at the Voegtly Cemetery reveal a society in transition between 1833 and 1861, where elements of the traditional Old World German culture apparently clashed with nineteenth-century mainstream urban America.

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¹Many societies provide their dead with money to pay for their “journey” into the next world. Also, placing coins over the decedent's eyes to keep them closed was commonplace before the advent of embalming and modern mortuary procedures.

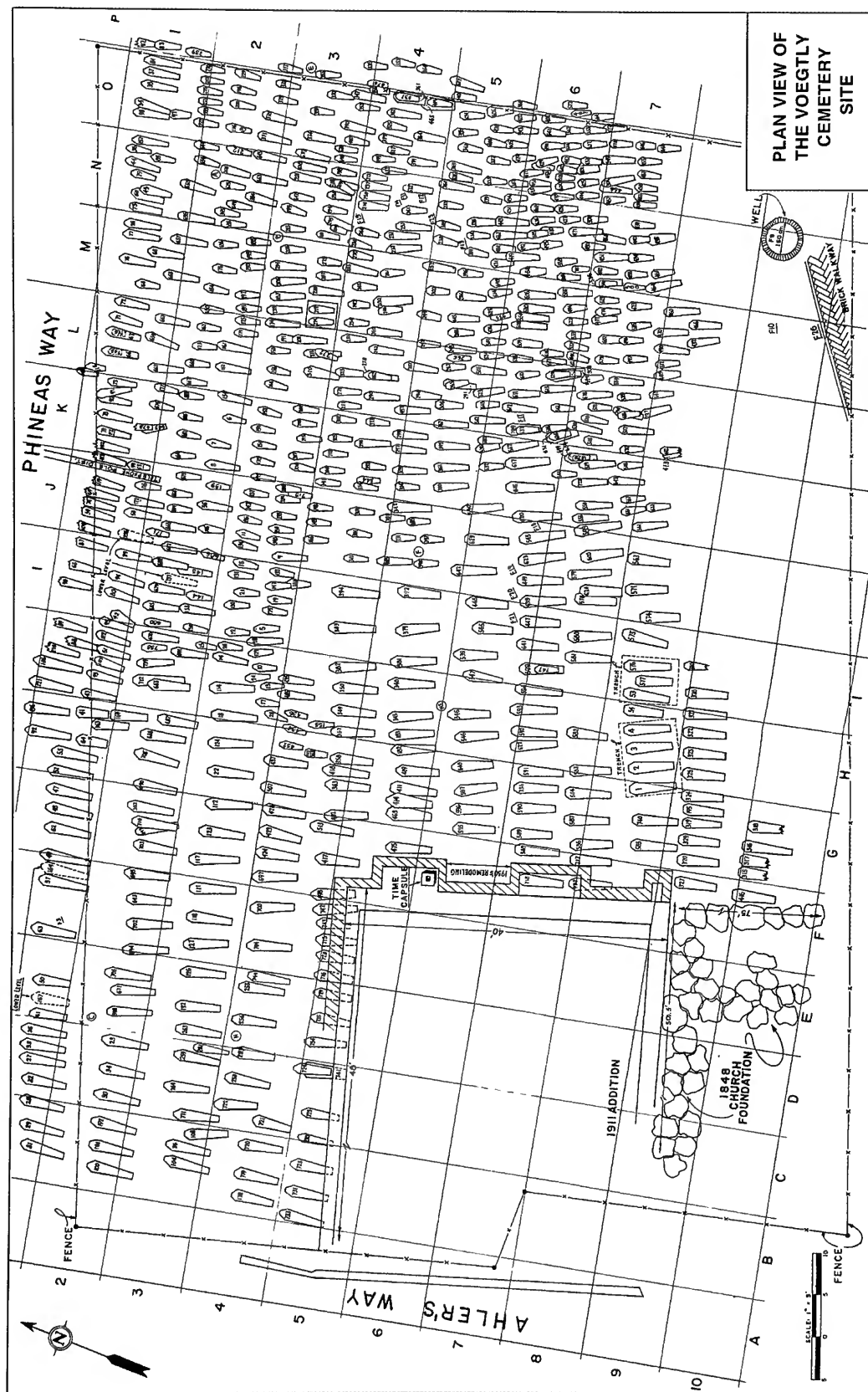


FIGURE 6.—Site map of grave locations within Voegtly Cemetery.

Early death was common in the nineteenth century, often brought on by the biological, economic, and cultural stresses of immediate conversion from an ethnic residential community to an urban industrial conclave, as evidenced by the Voegtly skeletal population. Disease, poor nutrition, and unsanitary conditions plagued everyone, regardless of socioeconomic class, but particularly the young. In Allegheny in 1832, the Asiatic Cholera reached epidemic proportions (Dahlinger, 1916:32). Most deaths probably resulted from tuberculosis and malaria, for these diseases were prevalent in areas with unplanned urbanization and inadequate sanitation facilities. Typhoid fever and dysentery, transmitted through uncooked food or unboiled drinking water, were everywhere (Coffin, 1976). Yellow fever was commonly known as "American distemper," and malaria was known as the "ague." Families in America had many children, knowing that at least some would die in infancy. As the early Voegtly Church community adapted to nineteenth-century urban lifestyles, the cemetery grounds preserved evidence of high infant mortality and the community's cultural and social transition during a critical 28-year period.

The cultural transition of Old Allegheny Town is most clearly revealed in coffin styles and selections, which can be used to classify and date individual burials. Coffin style and hardware ornamentation were compared with dates on coinage found with the deceased to develop a two-stage chronological scheme for the Voegtly Cemetery: an early period (1833–1840) and a later period (1840–1861) of use. The first stage reflects the initial Swiss-German settlement and the establishment of the church; the second stage shows the Voegtly congregation acculturating to the growing industrialism of Allegheny after 1840.

As expected, the earliest interments appear to have been in the area immediately adjacent to and behind the church. All were buried in a north-south direction, and all coffins were of the six-sided, wedge-shaped type. The preferred body placement was for a single individual to be placed in a single grave in an extended, supine position, with arms crossed at the wrists; however, some graves contained multiple individuals. Because written records were not available, family groupings could be spatially identified by vertical stacking and double burials. Among the 31 cases of stacked and double burials, 27 were children. Four were adult females with children buried either beside or on top of the adult body. Spousal relationships were suggested in 17 cases where a female was buried to the left of and beside a male, representing how they once stood at the marriage altar.

Segregation of individuals in the cemetery seemed to be important, not in terms of social status, as expected from the congregation's socialistic perspective, but in terms of age. The most obvious was the spatial separation of adults from juveniles (see Figure 6). This was common practice among European and American societies of the nineteenth century, a time when so many died in childhood. In the Protestant Evangelical faith, children were not responsible for their own Christian sal-

vation until they joined the church as pre-adults. If they passed away before this event, they were given special status in death. As one Evangelical scholar suggests, the idea of segregating children in graveyards was to place them in the "ultimate kindergarten" to eternally enshrine their special place in society (Ragon, 1983:44).

Coffin types varied by degrees of ornamentation rather than by morphology, from the earliest plain coffin with a nailed, flat lid, to painted coffins² that reflected German tradition, to the "rickrack"³ decorated coffin that coincided with the development of the professional undertaking business in America. The appearance of coffin hardware is also a chronological indicator,⁴ and can lead to an understanding of economic and social status. Hardware was expensive and in demand, once the funeral industry began to promote status-oriented decorations on coffins in the late 1800s. Most of the Voegtly Cemetery coffin hardware was likely manufactured during the mid-1800s, at the earliest. Only six of the Voegtly Cemetery coffins had handles, and all were on rickrack coffins of the swing-bail kind (post-1840). Handles of the swing-bail coffin are circa post-1840.⁵ Escutcheons, coffin screws, and white metal coffin caps, common as of 1860 as ornamental decorations, probably represent the funeral industry's intended illusion of wealth for its less affluent customers (Hacker-Norton and Trinkley, 1984:12).

The range and style of personal objects found within graves provided some indication of the socioeconomic composition of the Voegtly congregants, who were culturally similar to the Pennsylvania Dutch. Associated personal effects were remarkably low in frequency and number.⁶ This is probably due to a Pennsylvania Dutch superstition that "all jewelry should be taken from the corpse before burial" (Fogel, 1915:129). Only 23 people were buried with jewelry (e.g., earrings, a variety of undecorated straight pins, and hairpins). Only one gold wedding ring was found; however, before 1900 it was not common practice to wear wedding rings in America, and the Pennsylvania Dutch do not commonly wear wedding rings. Some children, however, were found buried with jewelry. Pennsylvania Dutch superstition holds that "a child must be bedecked with jewelry if it is to amount to anything in the world" (Fogel, 1915:40–41). Although some evidence suggests that everyday clothing was worn at the time of burial, in most cases all traces

²Of the 96 painted (usually red) coffins identified, 78% belonged to juveniles; coins associated with painted coffins dated from 1816 to 1857.

³"Rickrack" is a term adopted during fieldwork to describe a form of flagree trim that is unique to the Voegtly Cemetery. Present in 51 burials, rickrack occurred in a serpentine motif of copper wire mesh underlain by a finely woven fabric, indicating a cloth-covered coffin. Coins associated with rickrack coffins were dated 1852, 1853, and 1845.

⁴Coffin hardware was professionally manufactured and marketed sometime after 1840.

⁵By 1841 Sargent and Company catalogs had introduced the short-bar handle (Hacker-Norton and Trinkley, 1984:45).

⁶Only 10 burials contained deliberately interred artifacts, mostly within children's graves (e.g., a painted marble, a whistle, a small copper bell).

of fabric had decomposed. Only 22 burials contained shoe leather. Shoes in the eighteenth and nineteenth centuries were expensive. It was rare to have them buried with an adult, because they were commonly passed along to the living. Most shoes found at the cemetery were associated with children's graves, further supporting the special status ascribed to them in death. Personal adornments were generally minimal, as an outward symbol of the congregation's piety and simplicity.

The Evangelical faith stressed conservatism in all respects, including dress, jewelry, lifestyle, and a desire to preserve the Anabaptist values of simplicity and Christian piety. But after 1840 (when coffin manufacturers are first documented), affluent members were allowed a choice in all aspects of urban American life, including burial accouterments: they could maintain traditional links to the past by selecting the plain, wooden coffin, or they could bury their loved ones in store-bought ornate coffins.

Although subtle, acculturation was evident in the Voegtly Congregation from 1833 to 1861. Studying the burial remains has regenerated the cultural past of these German neighbors

and families of *Schweizer Loch*, documenting a society in transition.

Allegheny experienced its golden years of growth and developed rapidly in the mid-nineteenth century. Once a pastoral, residential neighborhood, the city became a melting pot of light industry. Ethnically cohesive enclaves of immigrants became assimilated into mainstream society. Developments in medicine and science transformed the nineteenth century as Americans demanded better sanitation and health conditions. The individual prospered as the American economy came to be driven by capitalism. The importance in society of individuals as private artisans was reduced as professional trade and industry grew.

Many elements of nineteenth-century transformation affected the Swiss Hole neighborhood, and signs of such are evident from the cemetery remains. Just as the plain wooden coffin evolved into the ornately decorated casket, the private cabinetmaker was transformed into the professional undertaker. The Voegtly Congregation lived and died in the midst of this era of transformation.

Biological and Cultural Analysis of Human Remains

Douglas H. Ubelaker and Erica B. Jones

This section focuses specifically on the analysis of the human remains submitted to the Smithsonian Institution. Relevant comparative data are included from the field notes and analysis of recovered artifacts, but substantive cultural details of this type are not presented here. The analysis of the Voegtly skeletal sample is presented within the context of other published analyses of relevant skeletal samples from throughout the world, but especially from the United States and Canada, dating from the historic period.

Excavation and Analysis of Cemetery Sites from the Historic Period

Although existing historical information gleaned from archival sources (Madrigal, 1999) provides much useful information on the biological condition of human populations during the recent past, significant gaps remain in our knowledge. The extent of information provided by historical sources reflects interests at the time, and such information needs critical evaluation. For example, due to public health concerns, abundant evidence may be available on the impact of disease on a population (Alchon, 1991; Newson, 1995; Sawchuck, 1999; Swedlund and Donta, 1999), yet precise disease diagnoses or information on the impact on subgroups of the population may be lacking. Historic sources may document aspects of emigration (Horn, 1979) or mortality (Barton, 1793; Walsh and Menard, 1974) yet need to be interpreted in consideration of complex factors that may be relevant (Morgan, 1988).

For a more complete view of the human condition during the recent past, traditional historical sources must be supplemented with information gleaned from other types of study. For example, if mortality information and other demographic data are not available or known to be accurate for a historic cemetery sample, analysis of surviving cemetery monuments may provide some factual supplement. Studies have documented, however, that grave monuments may not provide accurate information about the entire cemetery population because of the

practice of grave reuse and the social complexities that define who is represented by a monument (Cannon, 1993, 1995).

With increasing frequency, the excavation and analysis of cemeteries dating from the historic period have provided valuable comparative information about the populations represented, especially their burial customs, aspects of their material culture, and their biology (Grauer, 1999). Much of this work has stemmed from the accidental discovery of long-forgotten and unmarked cemeteries or from the intentional removal of known cemeteries when the ground they occupy is needed for some other purpose. Such situations may call for a complex archeological survey (King et al., 1993) to find the cemetery or to document its size and overall location. Detailed excavation is needed to maximize the information obtained and to preserve materials for further study and/or reburial (Doepkens, 1991; Ubelaker, 1995a, 1999; Owsley et al., 1997).

Although extensive cemetery excavation and analysis offer unique information about the people represented, complex social and political issues usually need to be addressed (Davis, 1986; Goldstein, 1995; Roberts and McCarthy, 1995). In accidental discoveries at construction sites, careful study will likely produce delays in construction schedules and monetary concerns for those involved. Laws or policies may apply that need to be addressed before excavation can begin (Ubelaker and Grant, 1989). Strong interest in the cemetery may stem from the local community and/or descendants (Roberts and McCarthy, 1995; Poirier and Bellantoni, 1997). Discussion of plans with those concerned can avoid some problems and help to establish a positive relationship between those conducting scientific study and the concerned community members (Poirier and Bellantoni, 1997).

To evaluate cemetery complexity and to properly plan an excavation and study, historical research is usually needed to define relevant local history and document any known complexity. This may include examining both the historical and relevant published archeological literature to frame the research approach to be taken (Bell, 1994). Collaboration with historians may be called for, given that proper interpretation of historical sources can be complex and may need a trained professional's approach (Cox, 1995).

Numerous published reports (Bell, 1994) as well as summary volumes (Grauer, 1995; Saunders and Herring, 1995; Poirier

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and Bellantoni, 1997) are now available, documenting the extent to which information gleaned from cemetery excavation and analysis can supplement existing historical sources (Rathbun, 1981; Owsley, 1990, 1997). New techniques of analysis, including chemical approaches (Aufderheide, 1989; Donoghue et al., 1998) and mathematical modeling (Sattenspiel, 1999), have greatly enhanced the potential for scientific analysis of historic human remains. Experience from excavation and analysis of historic remains coupled with forensic anthropology have helped define the nature of postmortem change (taphonomy) in human remains (Nawrocki, 1995; Walker, 1995). Knowledge of taphonomic process, combined with chemical analysis, helps to elucidate such historical problems as lead content that might relate to cultural practices (Aufderheide et al., 1981, 1984, 1988, 1992; Aufderheide and Wittmers, 1992; Baxter et al., 1992; Drasch et al., 1987; Drasch and Ott, 1988; Erkkila et al., 1992; Fielding and Russo, 1977; Flaherty, 1992; Franklin, 1991; Handler et al., 1986; Heard and Chamberlain, 1984; Inskip et al., 1992; Jones et al., 1990, 1992; Katzenberg, 1989; Nilsson et al., 1991; Patterson et al., 1991; Scarborough, 1984; Todd et al., 1992). The following summarizes aspects of this published work by region, emphasizing the biological information recorded. Studies from Europe and from non-European countries other than the United States are presented first, and studies from the United States follow, listed in order of increasing relevance to the Voegtly study.

SAMPLES FROM EUROPE

Austria

In the city of Hallstatt, crania associated with a church were exhumed by locals and, following tradition, were cleaned, painted, and placed in a charnel house. The individuals represented died between the years 1780 and 1890. Although the cranial sample represented only about 20% of the total deceased in the community, Sjøvold (1993, 1995) was able to use the sample to examine problems of temporal change and related immigration issues.

Portugal

The department of anthropology of Coimbra University maintains a unique skeletal collection of 504 individuals born between 1803 and 1917. The individuals were of low socioeconomic status, and their age at death, sex, birth place, profession, and other characteristics are known. Cunha (1993, 1995) found high levels of skeletal and dental indicators of stress in the sample, confirming that these indicators successfully detect problems known to have existed in the population represented.

London, England

An especially well-documented sample became available from St. Bride's Church, representing about 230 individuals

who had been buried in lead coffins between 1750 and 1860 (Bowman et al., 1993). Information was abundant but difficult to interpret because of conflicting information about some individuals, difficult terminology used in the records, and evidence that for personal reasons, some information in the records was intentionally inaccurate (Bowman et al., 1993). Skeletal analysis produced poor agreement between ages at death estimated from the skeletons and those indicated by the records (Scheuer and Bowman, 1995). Because of the problems with the records discussed above, these differences were difficult to interpret.

A larger but similar sample was available from Christ Church in Spitalfields. Restoration efforts within the church stimulated the recovery of nearly 1000 individuals born between 1646 and 1852. Of these, 396 were found with coffin plate information providing name, age at death, and date of death (Reeve and Adams, 1993; Molleson, 1993; Molleson et al., 1993; Cox, 1996). Although problems were encountered in the interpretation of the historical documentation (Cox, 1993), the sample offered not only an opportunity to check methods of skeletal age estimation (Molleson, 1993, 1995) and to study other age-related problems (Pfeiffer and Dixon, 2000) but also a valuable look at biological indicators in that population (Molleson et al., 1993; Cox, 1996).

SAMPLES FROM OTHER THAN EUROPE OR THE UNITED STATES

West Indies

As early as 1968, Stewart and Groome demonstrated that skeletons from the West Indies dating from the historic period presented useful information. Their analysis of a skeleton from Grenada discussed a type of dental mutilation known culturally from West Africa (Stewart and Groome, 1968).

Excavation of a historic cemetery in Montserrat dating to the eighteenth century produced 17 individuals thought to represent blacks during the slavery period. Analysis revealed a high frequency of most stress indicators and a dental caries rate of 18% (17 of 92 teeth with lesions) (Mann et al., 1987).

In Barbados, Corruccini and Handler (1980) reported on skeletons recovered from the Newton sugar plantation that were dated to between 1660 and 1820 (Corruccini and Handler, 1980; Handler and Corruccini, 1983). The study documented a temporal decrease in temporomandibular joint size in the remains, likely due to decreased chewing resistance (Corruccini and Handler, 1980), as well as demographic characteristics, dental pathology, odontometrics and discrete trait frequencies (Corruccini et al., 1982), a high frequency of linear hypoplasia (53%) (Corruccini et al., 1985), a high frequency of tooth root hypercementosis likely caused by periodontal disease (Corruccini et al., 1987), and evidence for congenital syphilis in three individuals (Jacobi et al., 1992).

Ecuador

Projects to restore and study the history of various churches in Quito led to the excavation and recovery of human remains dating from most of the periods in Ecuador's historic past. The greatest information was recovered from projects associated with the Convento de San Francisco in the old central historic part of Quito. Samples of human remains were first reported from various locales and time periods in and around the church (Ubelaker, 1994). Samples later excavated, analyzed, and reported from the central ossuary of the church date from historic time periods ranging from about 1500 to 1940 (Ripley and Ubelaker, 1992; Ubelaker and Ripley, 1999) and supplement data available from prehistoric contexts (Ubelaker, 1992, 1997, 2000). Skeletal evidence for morbidity and mortality correlated relatively well with historic records of similar data (Ubelaker, 1993, 1995a, 1995b).

Canada

Comparative data from analysis of Canadian historic samples are available from a wide range of sources. On the recent end of the range are remains thought to represent members of Sir John Franklin's last expedition to the Northwest Territories, between 1845 and 1848. Analysis of the recovered remains revealed evidence of scurvy and possible cannibalism (Beattie, 1983; Beattie and Savelle, 1983).

A sample of 77 skeletons, dating to between 1824 and 1879, originated from Prospect Hill, a nineteenth-century Methodist cemetery in Newmarket, Ontario (Pfeiffer et al., 1992). Analysis documented living stature, evidence for dental disease, and other skeletal problems as well as chemical evidence for the timing of weaning (Pfeiffer et al., 1992; Katzenberg and Pfeiffer, 1995).

One of the largest nineteenth-century historic samples available originated from 1989 excavations at St. Thomas' Anglican Church, Belleville, Ontario (Saunders, Herring, and Boyce, 1995; Saunders, Herring et al., 1995). Fifteen hundred and sixty five individuals were buried there between 1821 and 1874, and 595 of the burials (38%) were excavated. Study of the skeletal sample produced valuable comparative data on morbidity and mortality that accorded well with documentary information from the parish records (Herring et al., 1992; Jimenez, 1993; Saunders, Herring, and Boyce, 1995; Saunders, Herring et al., 1995; Saunders et al., 1997).

The recovery of 28 primary interments associated with the War of 1812 at the Snake Hill site, near Ft. Erie, Ontario, prompted an intensive study (Williamson, 1988).

In Quebec, 52 skeletons were discovered associated with mid-eighteenth century fortification walls. The remains are thought to represent prisoners who for religious reasons could not be buried in formal cemeteries. Analysis documented their poor dental health and many other biological features (Cybulski, 1988, 1993; Piedalue and Cybulski, 1997).

SAMPLES FROM THE UNITED STATES

Hawaii

Comparative data from the historic Pacific are available from excavations made in 1992 in downtown Honolulu. Fifteen skeletons were recovered, which date to between 1810 and 1850 (Goodwin et al., 1995). The remains were poorly preserved, but dental features and other observations were consistent with Hawaiian ancestry. Skeletal analysis revealed significant evidence of stress-related pathological problems.

Maryland

Nineteen skeletons, dating to between 1658 and 1680, were recovered in 1989 and 1990 from the Patuxent Point site (King and Ubelaker, 1996). The remains represent indentured servants, and their families, associated with a tobacco plantation. Analysis of the remains documented their relatively short life expectancy, harsh living conditions, and such cultural practices as pipe smoking (Ubelaker et al., 1996).

A later, larger sample originated from the cemetery at Catcott Iron Furnace. The remains of 31 individuals of African-American ancestry are present, which likely date from 1790 to 1840 (Burnston, 1997a). Kelley and Angel's (1983) analysis of these apparent workers at the facility revealed high frequencies of various biological stress indicators.

California

In 1994 San Francisco's California Palace of the Legion of Honor was renovated and more than 900 burials, dating between 1868 and 1906, were discovered. The sample largely represents poor, working-class individuals of European ancestry. Although only minimal time was available between excavation and reburial, the ample data that scientists were able to obtain suggested the 91 individuals in the sample had considerable health problems (Buzon et al., 2000).

Texas

Excavations at Site 41DT105 in Delta County produced individuals from 16 burials that date to between 1850 and 1890. The remains appeared to represent individuals of lower socioeconomic status and European ancestry. Study of general skeletal biology revealed abundant evidence of health problems (Winchell et al., 1992, 1995).

Another historic sample of human remains was recovered from the Freedman's cemetery in Dallas. This sample of at least 130 African-American individuals dates to between 1870 and 1920. Analysis suggested a relatively high infant mortality rate but a relatively healthy adult population.

South Carolina

Discoveries of human remains from the historic period in this state have varied from single individuals, such as the dis-

covery of the grave of General William Moultrie, who died in 1805 (South, 1979), to 36 African-American individuals who died in Mt. Pleasant between 1840 and 1870 (Rathbun, 1987).

Crist (1995) did a chemical dietary study of 26 adult skeletons from the Mt. Pleasant remains, and Rathbun (1985, 1987) provided skeletal biology data from these individuals. Harris and Rathbun (1989) added comparative data on tooth size, noting that the individuals represented had comparatively small teeth.

Rathbun and Smith (1997) reported on a sample of human remains representing 18 African-American individuals, recovered on Folly Island. The remains date to between 1863 and 1865 and relate to a Union Brigade cemetery created when Union forces occupied the island.

In Charleston, 16 bone clusters were discovered during salvage excavations at Belleview Plantation. The remains likely represent a prominent local merchant and politician, his family, and three of his slaves. Rathbun and Scurry (1983) analyzed biological features between the two status groups with interesting results. The elite group displayed a higher frequency of cribra orbitalia, which Rathbun and Scurry thought perhaps correlated with their higher lead levels.

Tennessee

Bass (1984) presented an interesting example of the extreme preservation that is possible with remains from the historic period. Working as a forensic anthropologist, in 1977 Bass was called to the scene of a cemetery where the grave of Lt. Col. W.M. Shy had been vandalized. The records indicated that Shy died in 1864; however, investigation of the gravesite revealed the presence of a very well-preserved individual, with most soft tissue intact. This initially suggested to Bass that perhaps a victim of recent foul play had been placed in the gravesite of Shy. Later, more thorough examination revealed that the remains were indeed those of Shy. The remarkable preservation apparently was influenced by the type of coffin used.

Excavations at the Blackburn cemetery in Maury County (Atkinson, 1987) produced the remains of eight individuals who died between 1818 and 1925. An analysis by Turner (1987) suggested that four individuals of European ancestry and four of African ancestry were present. Included in the report are data on skeletal biology and an excellent review of the literature.

Florida

A large sample (99 skeletons) of human remains was recovered from excavations at Fort Brooke cemetery. The remains date to between 1824 and 1846 and relate to the second Seminole War. Analysis by Wienker (1990) provided summaries of biological data and noted that both American Indian and non-Indian remains were present.

Dailey et al. (1972) reported the analysis of 20 individuals from the St. Marks cemetery. The remains date between 1812 and 1821.

Connecticut

Bellantoni and Cooke (1997) reported on a forensic investigation into vandalism at a known historic family crypt. Authorities reported vandalism at the crypt of the Chauncey family, a very prominent family whose members died between 1855 and 1873. Careful examination at the scene and analysis of the remains helped reconstruct the sequence of events of the vandalism and establish the motive (obtaining skulls).

A larger and earlier sample was examined by Bellantoni et al. (1997) from the Walton family cemetery in Griswold. This sample of 27 individuals dated from about 1757. The Bellantoni et al. (1997) study produced biological information with comparative data on stature.

Illinois

In 1991 workers in central Illinois were preparing to move a house in an area targeted for construction when they found burial markers of the Cross family. The burial dates ranged between 1846 and 1849. Excavation later revealed that 29 interments were present. Analysis of the remains reported by Larsen et al. (1995) documented their low life expectancy, poor dental health, and other aspects of their apparently harsh lives.

Ohio

In 1988 human remains were discovered in the basement level of an elevator shaft in Cincinnati's Music Hall. Historical research suggested they originated from a local cemetery of people who died between 1818 and 1837. Apparently, excavations in the cemetery in 1927 had produced the remains and they had been placed then in the elevator shaft location. Analysis of the secondary and commingled remains documented the presence of at least 30 adults and presented biological information (Murray and Perzigian, 1995).

Twenty-one skeletons were recovered from excavations at Ft. Laurens. The remains date from about 1779 and are consistent with European ancestry. Their analysis produced biological information and comparisons with other samples (Sciulli and Gramly, 1989).

Montana

Although samples were small and limited in scope, analyses of remains from the Custer National Cemetery originating with the Battle of the Little Bighorn deserve mention here. Snow and Fitzpatrick (1989) summarized their analysis of the remains of 34 troopers killed in the battle in 1876. Their forensic analysis revealed abundant evidence of perimortem trauma, including blunt force trauma, sharp force trauma, and gunshot injury. No evidence for suicide was found. Scott and Willey (1997) and Scott et al. (1998) provided an overview of the historical event and presented analysis of additional samples.

Georgia

Thomas et al. (1977) reported on an excavation and analysis in coastal Georgia of the remains of three individuals of contrasting social status. Remains of two of the individuals, dating to shortly before 1800, apparently represent slaves. The third individual was the teenage son of a wealthy planter; these remains date to about 1859. Although all of the remains presented evidence of poor dental health, the slaves' skeletons showed more evidence of physical activity and traumatic injury.

Excavations at Oakland cemetery in Atlanta produced remains of 17 individuals of African-American ancestry, all in excellent condition. The remains date to between 1850 and 1884 and represent citizens of Atlanta at that time (Dickens and Blakely, 1979). Blakely and Beck (1982) provided some information on the skeletal analysis conducted.

Louisiana

Through the work of D.W. Owsley (Smithsonian Institution) and colleagues, data are available from two important New Orleans samples. Because of planned development of the area, excavations were conducted in the Charity Hospital Cemetery, which dates to between 1849 and 1929. The excavations produced remains of about 271 individuals in about 140 coffins. Skeletal analysis of the sample produced data not only on demographic structure and morbidity but also on medical practices and autopsy procedures of that time (Owsley, 1993, 1995). Death records from the same hospital were available, providing valuable comparative information (Lanphear, 1991).

Fewer than 35 skeletons were discovered during construction in the area of New Orleans' first cemetery (Cleavenger et al., 1985). These were dated to between 1720 and 1810, and analysis revealed that most of the individuals were African American and had skeletal evidence of substantial physical activity and morbidity (Owsley et al., 1987).

Arkansas

Excavations at Cedar Grove Cemetery in southwest Arkansas provided an important comparative sample of 80 skeletons of African Americans dating between 1878 and 1930 (Rose, 1985; Maish et al., 1997; Boudreaux, 1999). Analysis generally suggested they represented a highly stressed population with poor health. Demographic analysis suggested an infant mortality rate of 27.5%, life expectancy at birth of only 14 years, and a mean adult age at death of 41 years for males and 38 years for females (Martin et al., 1985, 1987).

New York

One of the earliest studies of historic remains in North America was conducted by Shapiro (1930). Excavations at Nagel Cemetery in northern Manhattan within New York City ex-

posed 417 skeletons dating very broadly to between 1664 and 1908. Shapiro examined only 20 skeletons and largely confined his data collection to measurements. The remains were thought to represent mostly individuals of Dutch and English ancestry.

More recently, 81 burials, dating to between 1880 and 1894, became available for study from the Oneida County Almshouse and Asylum (Phillips, 1999, 2000). Although the cemetery generally represented a variety of individuals, Phillips (1997) argued that the burial sample represented the "insane" component.

In 1984 construction activity in Rochester accidentally exposed aspects of the cemetery associated with the Monroe County Almshouse (Saunders, 2000). The cemetery was likely in use from 1826 to 1863. Excavations yielded 305 human skeletons, offering important comparative data from this time period (Dannenhoffer, 1990; Lanphear, 1990; Sutter, 1995; Muller, 2000; Williams, 2000). The information gleaned from skeletal analysis compared favorably with that derived from study of records associated with the Almshouse and the surrounding community (Sirianni, 1993; Higgins and Sirianni, 1995; Sirianni and Higgins, 1995; Sirianni, 2000).

Excavations in New York City have produced a skeletal sample of more than 400 individuals of African ancestry from a site referred to as the African Burial Ground. The remains date from the eighteenth century. Research on this sample has focused on enamel hypoplasia (Mack et al., 2000), demographic variables (Blakey et al., 2000; Howson et al., 2000), molecular analysis (Kittles et al., 2000), craniometrics (Keita and Shujaa, 2000), chemical analysis (Goodman et al., 2000), growth and development (Shujaa et al., 2000), degenerative changes (Watkins et al., 2000), work-related skeletal alterations (Terranova et al., 2000), skeletal evidence of infection (Null et al., 2000), and related issues (Jackson et al., 2000; Medford et al., 2000; Rankin-Hill et al., 2000).

Valuable comparative data on disease and demographic problems in New York have also been gleaned from historic sources and archival documents (Higgins, 1994, 1997, 1999, 2000; Sirianni, 1999; Haines and Higgins, 2000; Killoran et al., 2000; O'Brien et al., 2000; Tarricone et al., 2000).

Pennsylvania

Large samples of human remains are available from cemeteries associated with the First African Baptist Church in Philadelphia (Parrington and Roberts, 1984, 1990; Angel et al., 1985, 1987; Kelley and Angel, 1986; Blakey, 1987; Crist et al., 1991). An early sample of about 89 individuals dates to between 1810 and 1823. A later sample of about 135 individuals dates to between 1823 and 1841. The remains are of African ancestry and show evidence of significant morbidity (Blakey et al., 1997). Also in Philadelphia, Burnston (1997b) reported on remains of two infants, dating from 1750 to 1785, found within a brick-lined toilet.

COMPARATIVE STUDIES

Although much of the literature discussed above contains comparative discussion, some contributions have focused specifically on such comparisons. For example, Owsley et al. (1991) compared skeletal pathology in a selection of historic samples from New York and Louisiana. They found greater morbidity in the northern samples even though the populations represented shared similar problems.

Some investigators have focused specifically on health problems in historic samples representing enslaved African Americans. These studies have reported strong indications of skeletal stress (Kelley and Angel, 1985, 1986; Blakey et al., 1994).

Topic-specific historic studies include those on living stature (Sokoloff and Villaflor, 1982; Steegmann, 1986), enamel hypoplasia (Lanphear, 1990), spondyloarthropathy (Rothschild and Rothschild, 1993), and military samples (Sledzik and Moore-Jansen, 1991).

In a key study, Angel (1976) compared a composite colonial sample dating from 1675 to 1879 with a composite modern sample dating from 1950 to 1975. His comparison examined various skeletal measurements, living stature, and dental data to assess general trends within these periods of United States history.

Data Collection Protocol for the Voegtly Sample

Procedures for data collection on the remains generally followed those outlined in *Standards for Data Collection from Human Skeleton Remains* (Buikstra and Ubelaker, 1994). The standards were developed with broad input from the anthropological community at a 1991 conference held at the Field Museum of Natural History in Chicago and with support from the National Science Foundation. Participants at that conference, and subsequent contributors to the published volume, were selected not only for their expertise in various aspects of skeletal biology but also to reflect a variety of academic backgrounds and training. The goal was to produce guidelines for data to be collected from human remains that would likely cease to be available for further study. The suggested procedures employ not an exhaustive list of all possible measurements and observations, but rather a selected list of those judged to be most valuable for comparative and future studies.

Data collection began on the Voegtly sample in 1993, just as the Chicago *Standards* became available. Thus, the project represented an early opportunity to test the standards and to facilitate comprehensive data recording in a systematic manner. Definitions are available in the published volume and are not repeated here except to explain the coding symbols used in the text. The standard data were supplemented by written text, photographs, and radiographs whenever appropriate. All standard data were subsequently computerized to facilitate analysis.

Estimates of sex employed criteria summarized in Bass (1987) and Ubelaker (1999). Sex was not estimated for immature remains because the most reliable sex differences are not

apparent until maturity. For adults, all evidence was considered, but special emphasis was given to indicators on the pelvis, because research has indicated the most reliable estimates can be made from this area of the skeleton. All estimates of sex considered the entire skeleton, but only the area of the skeleton providing the most important information is listed in the narrative burial descriptions (see "Individual Burial Descriptions").

To estimate age at death of immature remains, all indicators (e.g., dental formation, dental eruption, long-bone length, and epiphyseal closure) were used. Whenever possible, age at death was estimated from the extent of dental formation, using the standards of Moorrees, Fanning, and Hunt (1963a, 1963b).

Age estimates for mature remains generally followed standard procedures, such as those summarized by Bass (1987) and Ubelaker (1999). Specific techniques employed largely depended upon the preservation and completeness of the remains. As with estimates of sex, the area of the skeleton providing the most useful information for age estimation is listed in the burial description narrative, however, all available data were considered for each skeleton.

Estimates of living stature were generated using the appropriate standard formulae of Trotter (1970) for whites. Stature estimates using the femur carry an associated error of ± 3.7 cm for females and ± 3.3 cm for males.

Codes, from the *Standards*, were used to shorten the descriptive terminology and reduce repetition of language used frequently in describing the remains. In the inventory of remains present with each feature, these were numbers, used to summarize the completeness of bones present. In this system, "1" indicates greater than 75%; "2" indicates 25%–75% and "3" indicates less than 25%. Note also that for long bones, information is provided for both epiphyses and for the proximal, middle, and distal thirds of the diaphysis. For the vertebrae, ribs, and bones of the hands and feet, only the number of bones present is provided, not information on the relative completeness.

Within the dental inventory, some teeth are referred to in the descriptive text as present but damaged. These refer to teeth that were present but too incomplete to allow measurement. The incompleteness may have been produced by dental caries, and it was possible to collect some types of information from them.

Classification of bone weathering stages uses the system in Buikstra and Ubelaker (1994:98), taken from Behrensmeyer (1978). The stages used are as follows:

"Stage 0: Bone surface shows no sign of cracking or flaking due to weathering.

"Stage 1: Bone shows cracking, normally parallel to the fiber structure (e.g. longitudinal in long bones.). Articular surfaces may show mosaic cracking.

"Stage 2: Outermost concentric thin layers of bone show flaking, usually associated with cracks, in that the bone edges along the cracks tend to separate and flake first. Long thin flakes, with one or more sides still attached to the bone, are common in the initial part of Stage 2. Deeper and more exten-

sive flaking follows, until most of the outermost bone is gone. Crack edges are usually angular in cross section.

"Stage 3. Bone surface is characterized by patches of rough, homogeneously weathered compact bone, resulting in a fibrous texture. In these patches, all the external, concentric layers of bone have been removed. Gradually the patches extend to cover the entire bone surface. Weathering does not penetrate deeper than 1.0–1.5 mm at this stage, and bone fibers are still firmly attached to each other. Crack edges usually are rounded in cross section.

"Stage 4: The bone surface is coarsely fibrous and rough in texture; large and small splinters occur and may be loose enough to fall away from the bone if it is moved. Weathering penetrates into inner cavities. Cracks are open and have splintered or rounded edges.

"Stage 5: Bone is falling apart, with large splinters. Bone easily broken by moving. Original bone shape may be difficult to determine. Cancellous bone usually exposed, when present, and may outlast all traces of the former more compact, outer parts of the bones" (Buikstra and Ubelaker, 1994:98).

Taphonomic Factors

After almost a century and a half of burial, the remains from Voegtly Cemetery display the expected variable preservation. Although some individuals were relatively well-preserved (Figure 7), including preservation of some hair and soft tissue, others were extremely decomposed. Detail on the variability of bone survival (Figure 8) is given in "Individual Burial Descriptions."

Figure 9 presents frequencies of the five weathering stages documented in the sample, broken down into six age groups. These data suggest that most weathering stages were present in all age groups. The most extreme examples of weathering were most often found in subadult individuals.

Slight sex differences were apparent in the weathering patterns. Figure 10 plots the frequencies of the five weathering stages in males and females. Females show higher frequencies of the two extreme stages.

Many of the human remains displayed varying amounts of black deposits on their surfaces. One sample of such a black deposit from a right femur originating from burial 55 was submitted to Headquarters of the Federal Bureau of Investigation (FBI) for elemental analysis. Dennis Ward (FBI Materials Analysis Unit) studied the deposit and removed and cleaned a thick portion of it. The resulting material was crushed on a beryllium planchet and analyzed using a JEOL 6300 scanning electron microscope (SEM)/Oxford ISIS series 300 energy dispersive x-ray spectrometer (EDS). This EDS incorporates a silicon detector with an organic film "thin" x-ray window, which permits detection of all elements with an atomic number equal to or greater than six (carbon). The detection limit for most elements is about 0.5%.

Analytical parameters were selected in order to detect the presence of major and minor elemental constituents, so trace



FIGURE 7.—Well-preserved burial.

constituents may have been obscured if their x-ray peaks were small or overlapped. These parameters included the following: beam voltage 25 kV, beam current selected to yield a detector dead time of about 30%, counting time 100 seconds, and an acquisition preset value of four. The working distance was 15 mm, and the take-off angle about 30°

A "bulk" analysis was performed on the black material, as well as individual particle analysis. Results are presented in Figure 11. The calcium and phosphorus values are expected from the associated bone. The element most likely associated with the black deposit is manganese. This suggests that the black deposit was produced by prolonged contact with the soil in the burial environment.

Many of the remains also displayed green coloration, likely from copper in contact with or in close proximity to the remains. Details on the location of this green coloration, as well as listings of artifacts found with the remains that could represent sources for the staining, are in the burial-description section of this report.

Sixty-six individuals presented evidence of green, apparent copper staining. Of these, 11 were infants less than 2 years of



FIGURE 8.—Weathered bone surface.

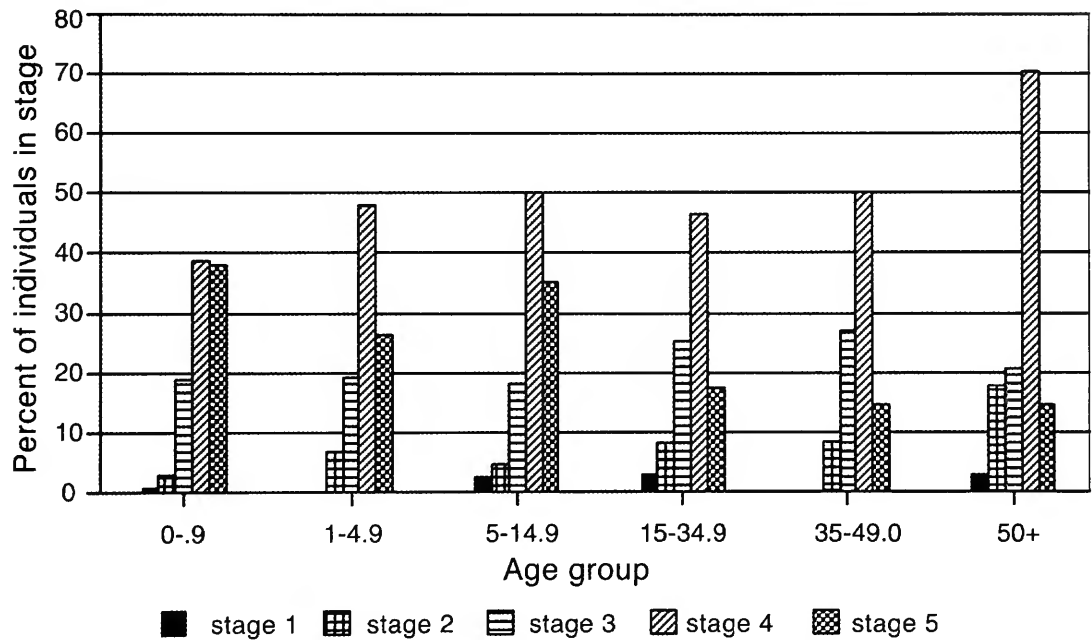


FIGURE 9.—The relationship of weathering stages with age at death.

age, 14 were subadults between the ages of 2 and 15, 23 were adult males (more than 15 years of age), 16 were adult females, and two were adults of unknown sex.

Green, copper staining was most often found on bones of the skull (32 examples), followed by the vertebrae and ribs (21 examples); arms, shoulders, and clavicles (20 examples); legs (nine examples); pelvis (eight examples); and hands (five examples). Six examples of staining were on unidentified bone. No copper staining was associated with the feet. The skull was the most frequent area stained in each of the age and sex categories.

Demographic Analysis

THE VOGTLY CHURCH CEMETERY RECORDS

Death records from the German Evangelical United Church cemetery (1833–1861) were translated from the original German text by Dzodin and Luff (1989) (Appendix 1). Information from these records was entered into a Paradox database and analyzed in an attempt to reveal demographic patterns within the burial population.

Each decedent had been assigned a record number by the pastor. In the most extensive cases, the pastor recorded the in-

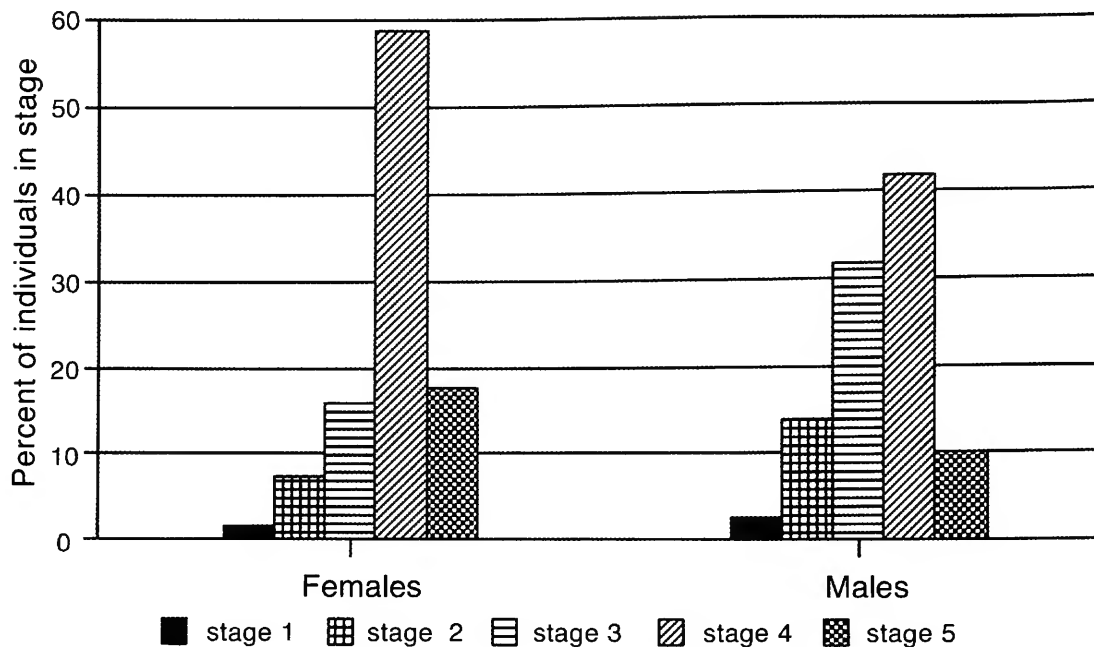


FIGURE 10.—The relationship of weathering stages with sex.

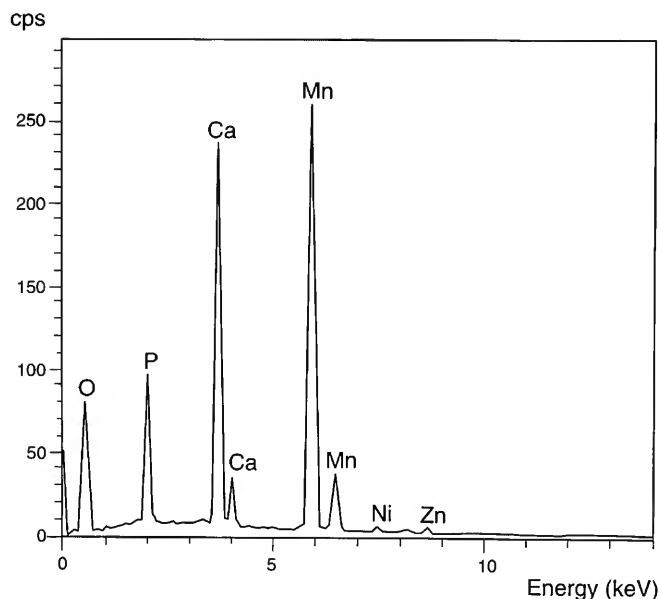


FIGURE 11.—Analysis of black deposit, burial 55.

individual's name, country of origin, year of arrival in the United States, date of marriage, name of spouse, names of parents, date of birth, date of baptism, date of death, date of burial, place of burial, and occasionally, cause of death. However, the different pastors keeping the records used varying styles in their recording, with some only noting the name and age of the

individual, and some even omitting that information and stating only that a burial had taken place that day.

Not all entries represent those buried in the Voegtly Church cemetery. Of the 896 entries in the record book, only 823 individuals were recorded as being buried on site. Others were buried, for example, in the German Evangelical Churchyard in Pittsburgh, in the English Cemetery in Lawrenceville, in the New Troy cemetery, near their homes, or even in the poorhouse cemetery. This analysis concerns only those persons buried at Voegtly and does not include the remains of Nicholas Voegtly, Sr., and his wife, who were the only individuals known to have been moved to the new cemetery at Troy Hill after being originally buried at Voegtly.

Number of Individuals

Although 823 records exist for those buried in the churchyard, not all of these give data on name, sex, or age. This is primarily the case with infants and children. Sixteen of the unknowns carry the notation "nicht angezeigt." This roughly translates as "not seen" or "not displayed" and may represent infants who were miscarried, stillborn, or died shortly after birth. The pastor generally noted in these cases that the individual was a child.

Of the 799 individuals of known age in the group, 311 were less than 1 year of age (38.9%), 192 were between 1 and 4.9 years (24.0%), and 66 were between 5 and 19.9 years of age (8.3%). Two hundred and thirty were 20 years of age or older (28.8%).

Of the 774 individuals of known sex in the group, 365 were females (47.2%) and 409 were males (52.8%). Ninety-nine females and 131 males were 20 years of age or over. Two hundred and sixty-six females and 278 males were less than 20 years of age. This is consistent with the immigration pattern of the Swiss/German evangelicals, who often emigrated with their entire families and even in groups of families.

Life Tables

The creation of a life table is a way of expressing demographic data by summarizing population statistics and estimating life expectancy (Ubelaker, 1999). In constructing these life tables, the procedure of weighting the age interval values is used in order to produce a closer estimate of the number of persons in each category, rather than simply taking the mean of a large age range, which might skew the results. For example, in quite a few cases, the pastor noted only that "a child" died, which could be any age from 0 to about 15 years. Using just the mean of this range, all individuals of unknown age would be put into one cohort, thus artificially inflating that number.

To weight the sample, the distribution of deaths that can be estimated accurately must first be calculated and assigned to five-year age intervals. The values in these age intervals are then weighted by proportionately assigning to them the individuals of unknown age so that the total number of individuals in the sample equals the number of individuals listed in the life table. Thus, those individuals of unknown age are distributed proportionately among the age intervals in which they might fall. This approach assumes that the actual ages at death of these individuals follows the documented age distribution of other individuals in the sample within these age limits. The procedure ensures that the correct proportion of mature to immature is maintained. It also maintains the age distribution suggested by the more precise age estimates.

Life tables were calculated from the death records for the entire population and were calculated separately for the sexes (Tables 1–3). In general, life expectancy was quite low, due to high infant mortality. Life expectancy at birth for the population was 14.7 years. If a child survived to age 1, he or she could expect to live another 23 years. After this, the life expectancy rose significantly. For example, if a child managed to reach his or her fifth year, he or she could expect another 33 years of life. In general, the mortality curve is quite flat beginning with the cohort aged 5–9.9, with the highest rates of mortality of adults in the 30–34.9 cohort (3.7%), followed by the 25–29.9 cohort (3.3%). Many individuals survived into old age, with 80 individuals dying after the age of 50; four individuals died in the maximum age group of 85–89.9.

Comparison of the life tables for females and males show few differences. The life expectancy at birth was 15.0 years for females and 16.2 years for males. Peak adult mortality for females was in the 25–29.9 cohort (3.8%), followed by the 55–59.9 cohort (3.4%). For males, it was in the 30–34.9 cohort (4.7%), fol-

lowed by the 35–39.9 cohort (4.5%). Among the oldest group, two of the 85+ adults were females and two were males.

Causes of Death

Only 151 records list the cause of death; these are generally given only for adults and for children who died in accidents, epidemics, or were stillborn. In many cases the cause is ambiguous, listing only illnesses of various lengths. They may be broken down as follows.

Cause of death	Instances
stillbirth	44
cholera	12
long illness	12
short illness	10
consumption	10
drowned	6
typhoid	5
childbirth	4
scarlet fever	4
accident	3
stroke	3
age and increasing weakness	2
died a few hours after birth	2
fell from roof while building house	2
feverish illness	2
illness of unknown duration	2
smallpox	2
sudden respiratory illness	2
typhus	2
bleikolik (lead poisoning; individual was a potter)	1
burns	1
collapse of coal mine	1
dropsy	1
during a journey	1
dysentery	1
effects of a single ****	1
fell from window; followed by amputation of left leg and subsequent death	1
fell into boiling water	1
hitzen gallenfiebers (some type of fever?)	1
hydrophobia (rabies)	1
kicked by a horse	1
lengthy sickness of the limbs	1
liver and intestinal disorders	1
sudden death of unknown cause	1
trachea tuberculosis	1

Of the known diseases, most were documented epidemics. Cholera, a diarrheal disease caused by fecal contamination of water and food, was sweeping the United States in 1849 and 1850 (Speck, 1993). All but one of the cholera victims died in August or September of 1850. The decedents were over 7 years of age, and all but three were over 25. Two were married couples; two were brothers in their 30s. All five typhoid victims died in September and October of 1845, including the deaths of two mothers and their young children. The four scarlet fever victims died in April of 1851; all were under 7 years of age and three were siblings. All three of these bacterial diseases can be spread by close contact. Likewise, consumption (tuberculosis)

tended to affect relatives, especially spouses. Even in undocumented causes of death, it was not uncommon for several family members to die within a short period of time, such as the

TABLE 1.—Life table based on burial records. (Dx=total number of individuals per age interval, dx=percentage of individuals dying in each age interval, lx=number of survivors of a theoretical cohort of 100 individuals entering each age interval, qx=probability of death in each age interval, Lx=total number of years lived during each age interval, Tx=total number of years lived after a lifetime of all individuals entering each age interval, e°x=life expectancy of all individuals entering each age interval.)

Age interval (x)	Dx	dx	lx	qx	Lx	Tx	e°x
0	325.96	39.65	100.00	0.3965	80.175	1473.735	14.74
1	196.2	23.87	60.35	0.3955	193.660	1393.560	23.09
5	38.84	4.73	36.48	0.1297	170.575	1199.900	32.89
10	14	1.70	31.75	0.0535	154.500	1029.325	32.42
15	14.12	1.72	30.05	0.0572	145.950	874.825	29.11
20	22.19	2.70	28.33	0.0953	134.900	728.875	25.73
25	27.23	3.31	25.63	0.1291	119.875	593.975	23.17
30	30.25	3.68	22.32	0.1649	102.400	474.100	21.24
35	25.21	3.07	18.64	0.1647	85.525	371.700	19.94
40	16	1.95	15.57	0.1252	72.975	286.175	18.38
45	16	1.95	13.62	0.1432	63.225	213.200	15.65
50	21.44	2.61	11.67	0.2236	51.825	149.975	12.85
55	25.44	3.11	9.06	0.3433	37.525	98.150	10.83
60	15.32	1.86	5.95	0.3126	25.100	60.625	10.19
65	17.36	2.11	4.09	0.5159	15.175	35.525	8.68
70	2.04	0.25	1.98	0.1263	9.275	20.350	10.28
75	7.14	0.87	1.73	0.5029	6.475	11.075	6.40
80	3.06	0.37	0.86	0.4302	3.375	4.600	2.66
85	4.08	0.50	0.49	1.0200	1.225	1.225	2.50
90	0	0	0	0	0	0	0

TABLE 2.—Life table based on burial records for females. (Dx=total number of individuals per age interval, dx=percentage of individuals dying in each age interval, lx=number of survivors of a theoretical cohort of 100 individuals entering each age interval, qx=probability of death in each age interval, Lx=total number of years lived during each age interval, Tx=total number of years lived after a lifetime of all individuals entering each age interval, e°x=life expectancy of all individuals entering each age interval.)

Age interval (x)	Dx	dx	lx	qx	Lx	Tx	e°x
0	135.09	37.01	100.00	0.3701	81.495	1499.375	14.99
1	89.76	24.59	62.99	0.3904	202.780	1417.880	22.51
5	25.10	6.88	38.40	0.1792	174.800	1215.800	31.64
10	10.04	2.75	31.52	0.0872	150.725	1040.300	33.00
15	5.02	1.38	28.77	0.0480	140.400	889.575	30.92
20	9	2.46	27.39	0.0898	130.800	749.175	27.35
25	14	3.84	24.93	0.1540	115.050	618.375	24.80
30	11	3.01	21.09	0.1427	97.925	503.325	23.86
35	7	1.92	18.08	0.1062	85.600	405.400	22.42
40	6	1.64	16.16	0.1015	76.700	319.800	19.79
45	5	1.37	14.52	0.0944	69.175	243.100	16.74
50	9.19	2.52	13.15	0.1916	59.450	173.925	13.23
55	12.26	3.36	10.63	0.3161	44.750	114.475	10.77
60	8.17	2.24	7.27	0.3081	30.750	69.725	9.59
65	11.23	3.08	5.03	0.6123	17.450	38.975	7.75
70	1.02	0.28	1.95	0.1436	9.050	21.525	11.04
75	2.04	0.56	1.67	0.3353	6.950	12.475	7.47
80	2.04	0.56	1.11	0.5045	4.150	5.525	4.98
85	2.04	0.56	0.55	1.0200	1.375	1.375	2.50
90	0	0	0	0	0	0	0

Dierdorf family, who lost six children in five years, including stillborn twins. By the time of the father's death, only three of their 11 children were still living. When relatives died within days of each other, the pastor occasionally noted that they were buried in the same grave, but this probably occurred more often than is recorded. Whether affected individuals were quarantined is unknown.

Average Age at Death

The average age at death for all individuals was 14.6 years, with a range of 0 to 86 years. For those of known sex, the average was 14.8 years for females and 15.8 years for males.

Childhood Mortality

Two different methods of estimating childhood mortality rates per family were used for the Voegtly records. One was to total the records of deaths of children who had the same parents' names. Because this information was not always given, the number of deceased siblings was surely higher, as many of the surnames are quite common.

Using this method, it was found that many families lost more than one child during the operation of Voegtly Cemetery. In cases where parents' names are recorded, one family lost six children, one lost five, one lost four, seven lost three, 16 lost two, and two couples lost newborn twins. In many cases the

TABLE 3.—Life table based on burial records for males. (Dx=total number of individuals per age interval, dx=percentage of individuals dying in each age interval, lx=number of survivors of a theoretical cohort of 100 individuals entering each age interval, qx=probability of death in each age interval, Lx=total number of years lived during each age interval, Tx=total number of years lived after a lifetime of all individuals entering each age interval, e°x=life expectancy of all individuals entering each age interval.)

Age interval (x)	Dx	dx	lx	qx	Lx	Tx	e°x
0	148	36.27	100.00	0.3627	81.865	1618.785	16.19
1	101	24.75	63.73	0.3884	205.420	1536.920	24.12
5	13	3.19	38.98	0.0818	186.925	1331.500	34.16
10	4	0.98	35.79	0.0274	176.500	1144.575	31.98
15	9.12	2.24	34.81	0.0643	168.450	968.075	27.81
20	13.18	3.23	32.57	0.0992	154.775	799.625	24.55
25	13.18	3.23	29.34	0.1101	138.625	644.850	21.98
30	19.26	4.72	26.11	0.1808	118.750	506.225	19.39
35	18.25	4.47	21.39	0.2090	95.775	387.475	18.11
40	10	2.45	16.92	0.1448	78.475	291.700	17.24
45	11	2.70	14.47	0.1866	65.600	213.225	14.74
50	12.25	3.00	11.77	0.2549	51.350	147.625	12.54
55	13.28	3.25	8.77	0.3706	35.725	96.275	10.98
60	7.15	1.75	5.52	0.3170	23.225	60.550	10.97
65	6.13	1.50	3.77	0.3979	15.100	37.325	9.90
70	1.02	0.25	2.27	0.1101	10.725	22.225	9.79
75	5.11	1.25	2.02	0.6188	6.975	11.500	5.69
80	1.02	0.25	0.77	0.3247	3.225	4.525	5.88
85	2.04	0.50	0.52	0.9615	1.300	1.300	2.50
90	0	0	0	0	0	0	0

children died with days or weeks of each other, suggesting the family was fighting a particular disease or diseases.

Another method of determining family mortality is to use the information given by the pastor when a parent dies. The pastor may have written, for example, "of 10 children, 7 survive him," or "he leaves 2 children," without giving the total number born to the decedent. Using just the information on the number of children born to each couple, a graph can be constructed, showing that most individuals had 3 children at the time of their deaths (Figure 12).

Figure 13 shows the number of children who survived the decedent. This information was taken from the pastor's notes on the number of surviving children. Four is the mode. Figure 14 shows the number of children born and the number who died of all families whose data are recorded in the register.

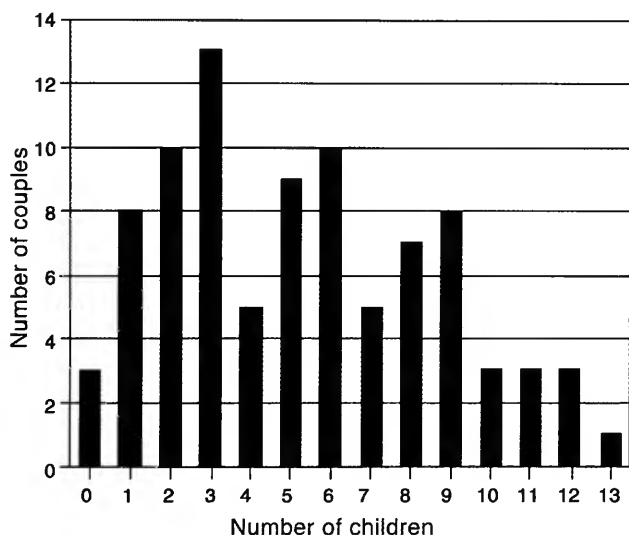


FIGURE 12.—Number of children born to decedent during lifetime.

Seasonal Mortality

The percentage of individuals dying each month was plotted to determine if death was related to a particular time of the year. The most distinct pattern was noted for children up to 5 years of age, with 13.4% of deaths occurring in July and 11.9% in August (Figure 15). This suggests, obviously, that summer diseases most often proved fatal to children.

Days between Death and Burial

The pastors were careful to note the date of burial as well as the date of death. The number of days between these two events was calculated (Figure 16). The most common interval was one day, shown for 62.2% of individuals, followed by two days (20.3%) and by same-day burial (4.7%). The longest interval is 11 days, which may have been a clerical error. The interval did not appear to change over time. The age of the individual did not appear to affect the length of the interval.

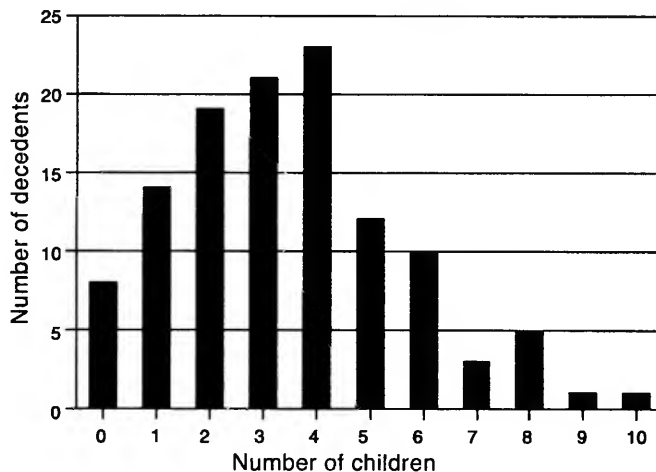


FIGURE 13.—Number of children surviving decedent.

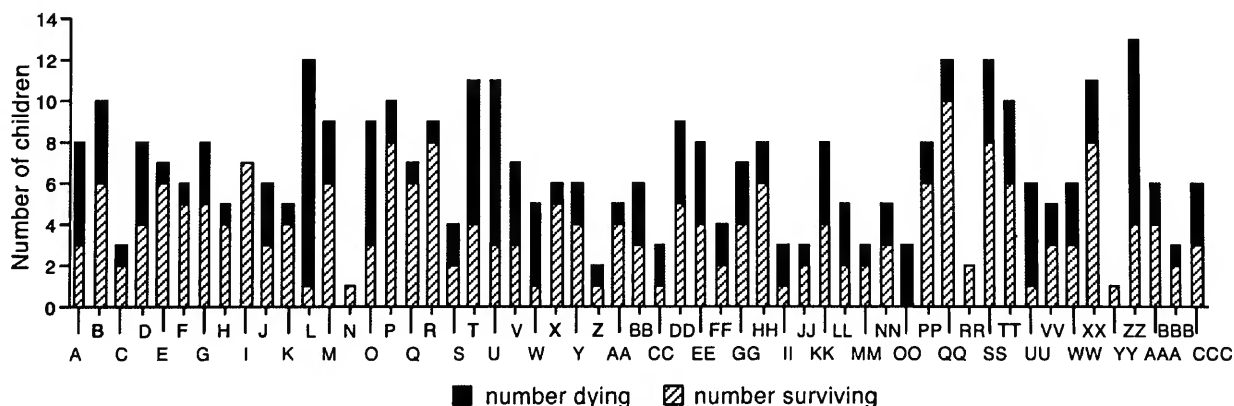


FIGURE 14.—Number of children surviving decedent compared with those who died before decedent. Letters were arbitrarily assigned to decedents' families.

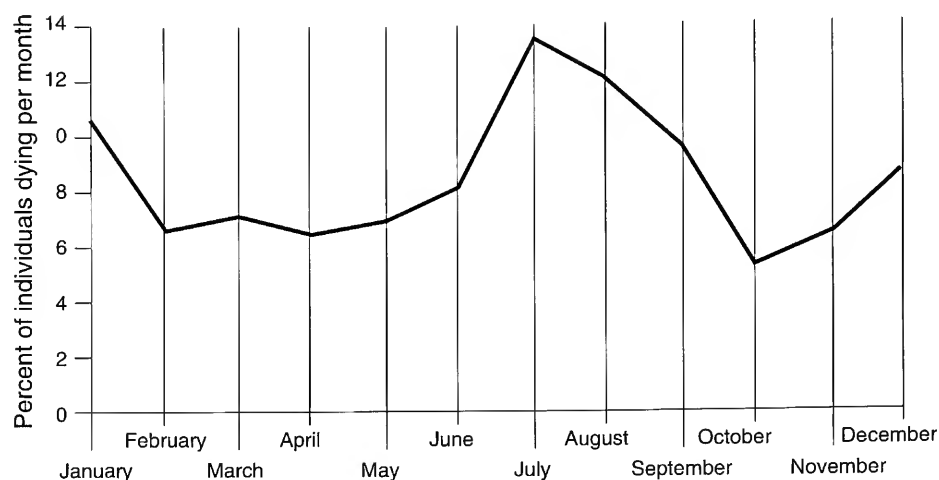


FIGURE 15.—Mortality by month of year.

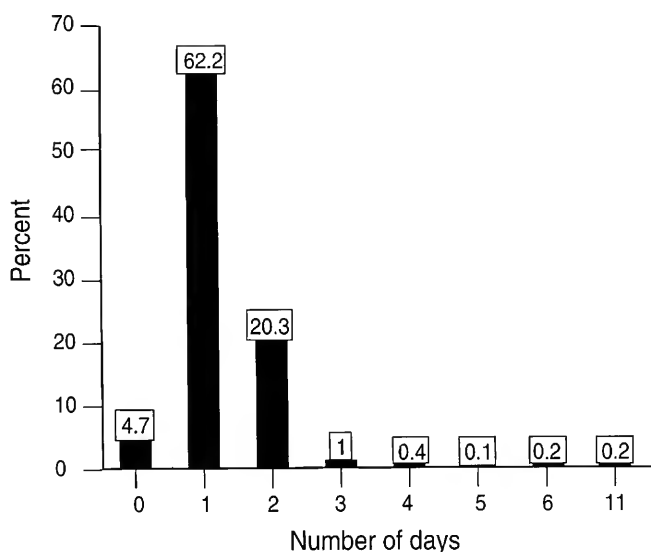


FIGURE 16.—Number of days between death and burial.

Immigration Patterns

According to the records, at least 267 individuals were foreign born (122 females and 145 males). Of these, 232 were over 15 years of age, had lived in the United States for an average of 10.6 years, and had an average age at death of 44.0 years. Thirty-five were under 15 years of age and had lived in the United States for an average of 2.8 years, with an average age at death of 5.7 years. For all immigrants, the average time spent in the United States was 10.2 years, with an average age at death of 39.3 years. The earliest recorded immigrant buried in the cemetery appears to have been Johannes Stilli, who arrived in 1814 and died 26 years later, at the age of 40, of consumption.

Four hundred and four individuals are believed to have been native born, based on either statement of such in the records or

on the close concordance between their dates of birth and baptism at Voegtly Church. Of those for whom sex is known, 166 were female and 201 were male. The average age at death for these individuals was 2.1 years.

Marriage Patterns

The mean age of marriage for the Voegtly population was 26.6 years: 25.1 years for females, with a range of 17 to 43 years, and 28.1 years for males, with a range of 20 to 55 years. It was very unusual for an adult not to marry. Several individuals remarried; one male had taken his fourth wife at the time of his death. Two individuals were separated, one because her husband was "wild," and the other for unknown reasons. They both remarried.

Professions

Professions are given for only 10 males in the sample: a gilder, a shoemaker, a printer, a farmer, two butchers, a man who engaged in "administration of public offices" after gaining wealth, an operator of a pottery shop (who died of lead poisoning), a stone mason, who rose to become the Director of Public Construction, and a veterinarian. Many men were buried with military honors, likely from earlier service in Europe. One was a veteran of America's Revolutionary War. Interestingly, two males went to California during the gold rush years, only to return sick and die.

SKELETAL REMAINS

Comparison of Profiles from Archival Data and Skeletal Material

A life table was constructed from the ages at death derived from the Voegtly skeletal sample using standard procedures (Ubelaker, 1999). Comparing it with life tables reconstructed

from the archival data revealed a somewhat different picture of mortality. In the weighted life table constructed for skeletal remains (Table 4), only 544 individuals are represented, compared with 823 individuals represented by burial records. The life expectancy at birth (13.6 years) is still quite close to that suggested by the burial record (14.7). The greatest difference between the numbers of individuals suggested by the archival data and those in the skeletal sample is in the 0–0.9 year range, with 150 infants not accounted for, followed by the 1–4.9 year old group, where 50 individuals were not recovered. This, of course, may reflect the extremely fragile nature of young children's bones and their possible complete decay.

The number of individuals in other age groups is more or less comparable between the two samples until the groups over 50 are examined. Of 96 suggested by the church records to be over 50 years old, only 26 were skeletally identified in these age categories. This may be due to several factors. At least six of the individuals were placed in a middle-age category (35 to 50 years) based on skeletal characteristics. In addition, bones of the elderly may not preserve as well, because conditions such as osteoporosis may make bone more susceptible to decay. Another factor may be loss of the graves near the church during construction. According to the map, at least eight burials were partially destroyed by the 1911 addition; it may be that others in this area were destroyed or were moved to the Troy Hill cemetery.

A life table was then constructed using both skeletal and archaeological information (Table 5). When empty coffins or coffin outlines were recovered, the age of the individual was estimated from the size of the grave and placed into the appropriate age category. This was difficult for adult-sized coffins,

and the ages of the individuals represented had to be produced by the weighting method described earlier. Fortunately, very few adult-sized coffins were empty. Using this procedure, 687 individuals were accounted for. Seventy four infants were added, leaving only 77 infants unaccounted for, compared with church records, and one individual was added to the over-50 category. Another life table was then constructed (Table 6) us-

TABLE 5.—Life table based on skeletal and archeological remains, weighted. (Dx=total number of individuals per age interval, dx=percentage of individuals dying in each age interval, lx=number of survivors of a theoretical cohort of 100 individuals entering each age interval, qx=probability of death in each age interval, Lx=total number of years lived during each age interval, Tx=total number of years lived after a lifetime of all individuals entering each age interval, e^ox=life expectancy of all individuals entering each age interval.)

Age interval (x)	Dx	dx	lx	qx	Lx	Tx	e ^o x
0	249	36.24	100.00	0.3624	81.880	1213.205	12.13
1	187	27.22	63.76	0.4269	200.600	1131.325	17.74
5	42	6.11	36.54	0.1672	167.425	930.725	25.47
10	18	2.62	30.43	0.0861	145.600	763.300	25.08
15	13.18	1.92	27.81	0.0690	134.250	617.700	22.21
20	14.53	2.11	25.89	0.0815	124.175	483.450	18.67
25	30.37	4.42	23.78	0.1859	107.850	359.275	15.11
30	37.64	5.48	19.36	0.2830	83.100	251.425	12.99
35	26.4	3.84	13.88	0.2766	59.800	168.325	12.13
40	24.14	3.51	10.04	0.3496	41.425	108.525	10.81
45	17.43	2.54	6.53	0.3890	26.300	67.100	10.28
50	9.22	1.34	3.99	0.3358	16.600	40.800	10.22
55	6.19	0.90	2.65	0.3396	11.000	24.200	9.13
60	4.48	0.65	1.75	0.3714	7.125	13.200	7.54
65	2.92	0.42	1.10	0.3818	4.450	6.075	5.52
70	4.48	0.65	0.68	0.9559	1.625	1.625	2.70
75	0	0	0	0	0	0	0

TABLE 4.—Life table based on skeletal remains. (Dx=total number of individuals per age interval, dx=percentage of individuals dying in each age interval, lx=number of survivors of a theoretical cohort of 100 individuals entering each age interval, qx=probability of death in each age interval, Lx=total number of years lived during each age interval, Tx=total number of years lived after a lifetime of all individuals entering each age interval, e^ox=life expectancy of all individuals entering each age interval.)

Age interval (x)	Dx	dx	lx	qx	Lx	Tx	e ^o x
0	175.47	32.26	100.00	0.3226	83.870	1356.935	13.57
1	146.39	26.91	67.74	0.3972	217.140	1273.065	18.79
5	34.09	6.27	40.83	0.1536	188.475	1055.925	25.86
10	15.13	22.78	34.56	0.0804	165.850	867.450	25.10
15	13.25	2.44	31.78	0.0768	152.800	701.600	22.08
20	13.25	2.44	29.34	0.832	140.600	548.800	18.70
25	27.74	5.10	26.90	0.1896	121.750	408.200	15.17
30	33.17	6.10	21.80	0.2798	93.750	286.450	13.14
35	23.83	4.38	15.70	0.2790	67.550	192.700	12.27
40	21.94	4.03	11.32	0.3560	46.525	125.150	11.06
45	13.95	2.56	7.29	0.3512	30.050	78.625	10.78
50	8.58	1.58	4.73	0.3340	19.700	48.575	10.27
55	5.71	1.05	3.15	0.3333	13.125	28.875	9.17
60	4.30	0.79	2.10	0.3762	8.525	15.750	7.50
65	2.85	0.52	1.31	0.3969	5.250	7.225	5.52
70	4.30	0.79	0.79	1.0000	1.975	1.975	2.50
75	0	0	0	0	0	0	0

TABLE 6.—Life table based on skeletal and archeological remains, unweighted. (Dx=total number of individuals per age interval, dx=percentage of individuals dying in each age interval, lx=number of survivors of a theoretical cohort of 100 individuals entering each age interval, qx=probability of death in each age interval, Lx=total number of years lived during each age interval, Tx=total number of years lived after a lifetime of all individuals entering each age interval, e^ox=life expectancy of all individuals entering each age interval.)

Age interval (x)	Dx	dx	lx	qx	Lx	Tx	e ^o x
0–0.9	249	36.30	100.00	0.3630	81.850	1239.880	12.40
1–4.9	187	27.26	63.70	0.4279	200.280	1158.030	18.18
5–9.9	42	6.12	36.44	0.1679	166.900	957.750	26.28
10–14.9	17	2.48	30.32	0.0818	145.400	790.850	26.08
15–19.9	14	2.04	27.84	0.0733	134.100	645.450	23.18
20–24.9	13	1.90	25.00	0.0734	124.250	511.350	19.82
25–29.9	27	3.94	23.90	0.1649	109.650	387.100	16.20
30–34.9	34	4.95	19.96	0.2480	87.425	277.450	13.90
35–39.9	25	3.64	15.01	0.2425	65.950	190.025	12.66
40–44.9	30	4.37	11.37	0.3843	45.925	124.075	10.91
45–49.9	14	2.04	7.00	0.2914	29.900	78.150	11.16
50–54.9	12	1.75	4.96	0.3528	20.425	48.250	9.73
55–59.9	7	1.02	3.21	0.3178	13.500	27.825	8.67
60–64.9	6	0.87	2.19	0.3973	8.775	14.325	6.54
65–69.9	6	0.87	1.32	0.6591	4.425	5.550	4.20
70–74.9	3	0.44	0.45	1.0000	1.125	1.125	2.5
75–79.9	0	0	0	0	0	0	0

ing averages of ages of adults rather than weighting them, and the total of adults over 50 increased to 34.

Compared with the church records, Table 4, which uses only skeletal elements, is most accurate in estimating life expect-

ancy under 5 and over 50 years of age. The other tables showed slightly closer estimates in the intervening years.

Mortality curves based on the life tables were constructed for each of the datasets (Figures 17–20). The curve based on the

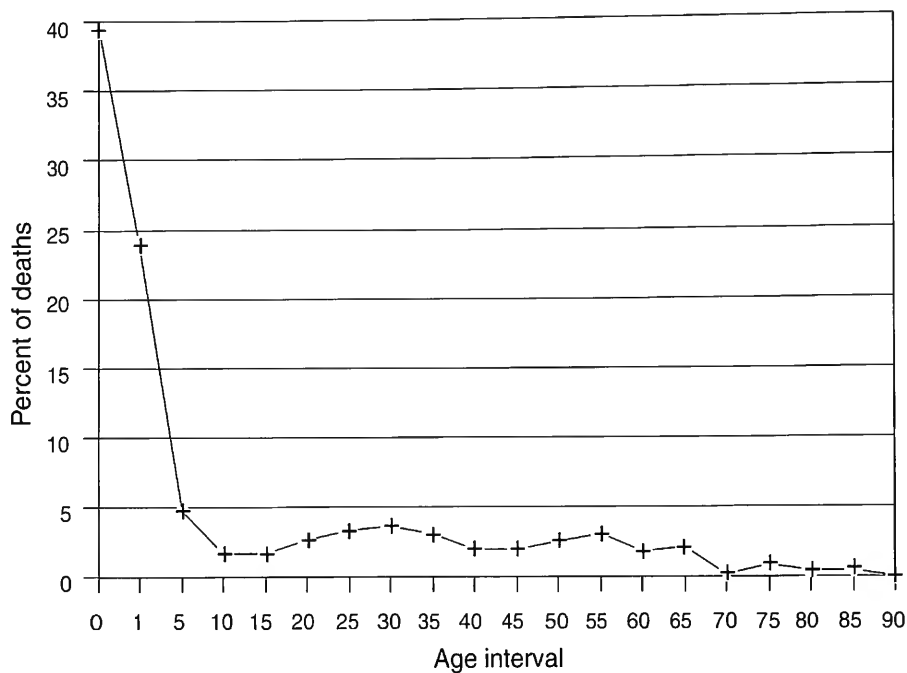


FIGURE 17.—Mortality curve derived from burial records.

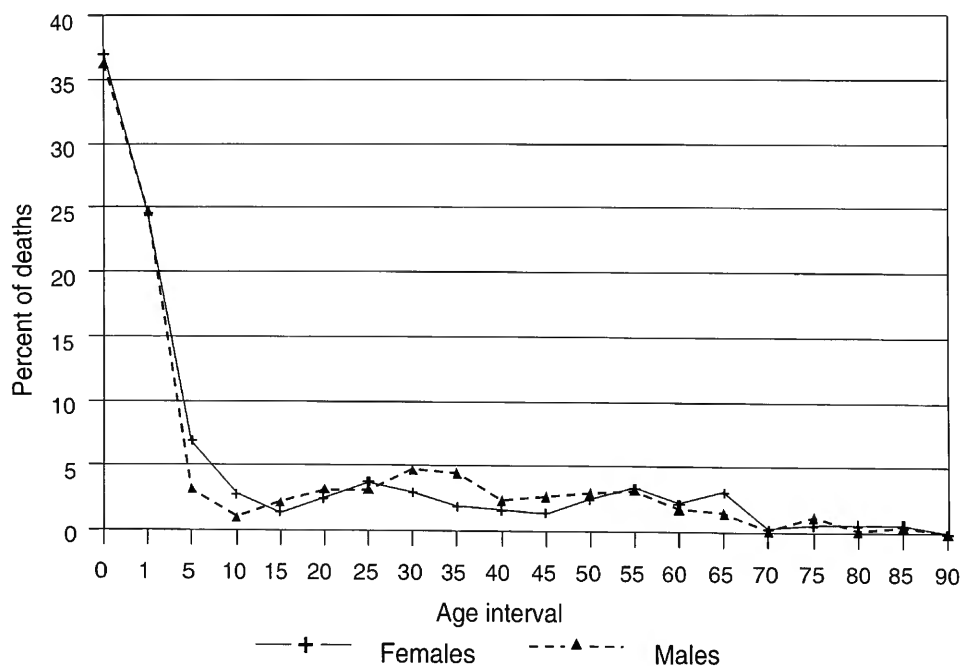


FIGURE 18.—Mortality curve derived from death records, male and female.

skeletal remains alone (Figure 19), when compared with the burial record curve (Figure 17), shows a higher percentage of deaths at 25 through 45 years. The curve based on the skeletal

and archaeological information (Figure 20) more clearly matches that derived from the historical documents, because of the greater number of infants.

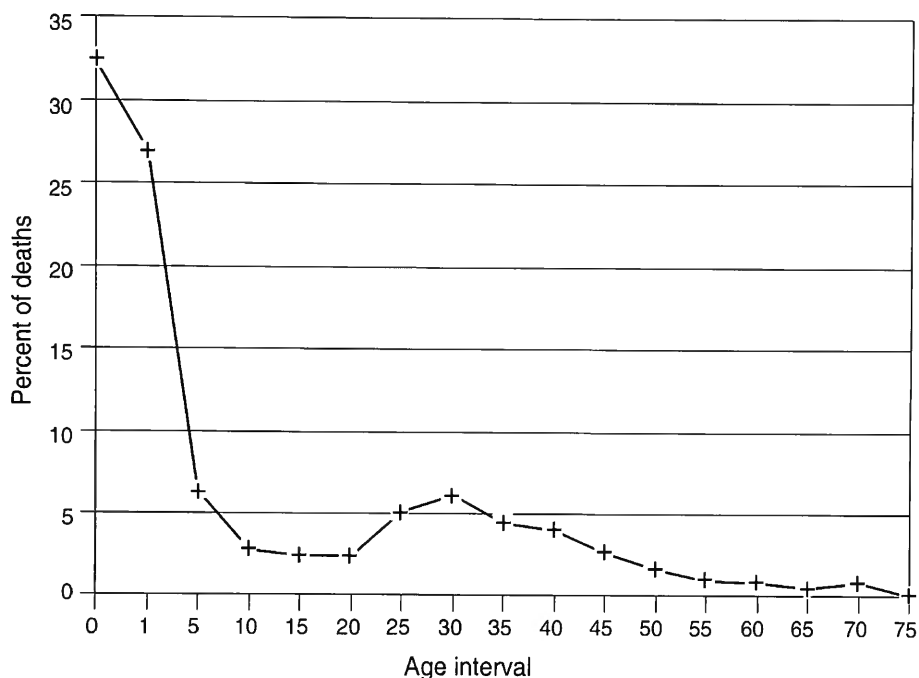


FIGURE 19.—Mortality curve derived from skeletal remains.

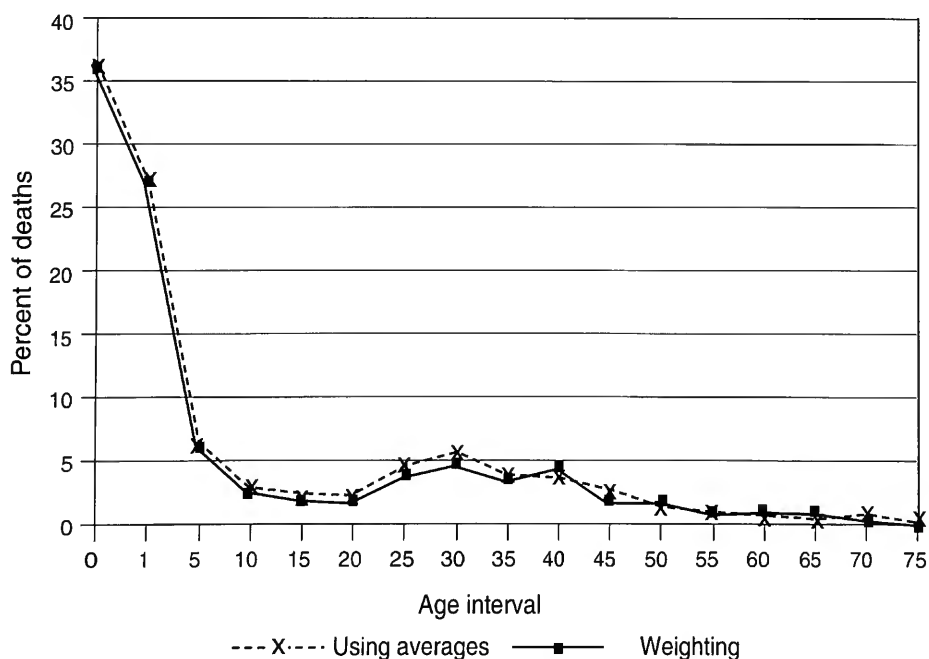


FIGURE 20.—Mortality curve derived from archeological data.

Comparison with Other Samples

The skeletal remains of 544 individuals could be aged with some accuracy. Seventy-six females and 95 males are represented. One hundred seventy-five individuals were less than 1 year of age, 370 were less than 15 years of age, and 385 were less than 20 years of age. Using 15 as the cut-off for adulthood, the child to adult ratio is 2.1. If one uses 20 as the limit, the ratio is 2.2.

The average age of death of all of the individuals was 13.6 years. For females, the average age at death was 37.2; for males it was 37.6 years. For those 15 years and older, the adult average age at death was 33.4 for females and 36.2 for males. For those 20 and older, the average age at death was 35.4 for females and 37.0 for males.

These averages are similar to but slightly higher than those for the Highland Park Cemetery, associated with the Monroe County Poorhouse in Rochester (Sutter, 1995), where the mean age at death for adults 20 and older was 32.5 for females and 35.1 for males. The age-at-death distribution is quite different (Dannenhoffer, 1990), however: at Highland Park 66% of the decedents were 20 or older and 34% were under 20, whereas at Voegtly (based on skeletal remains) 29.4% were 20 or older and 70.6% were under 20. In studying a three-year sample (1847–1849) of records from the poorhouse, Sirianni (1993) found that the average age at death for adults was 39.7 for females and 47.8 for males. It must be noted that a cholera epidemic was taking place during the period she studied. Cholera tends to put middle-aged adults at risk (27 died in one of the years in her study) (Sirianni, 1999), which may have affected the ages of her sample (i.e., more older people died than usual, increasing the average age at death).

At the Freedman's Cemetery in Texas, 37% of the decedents were subadult and 65% were adult (Hoffman et al., 1993), an age-at-death distribution surprisingly similar to that seen at the poorhouse.

Similarly, at the cemetery at the Dunning Poorhouse in Chicago (1851–1869), Grauer et al. (2000) reported that 34.9% of the cemetery population were under 15 (68.2% at Voegtly) years of age, 29.9% were between 15 and 25 (4.9% at Voegtly), and 35.9% were over 25 (26.9% at Voegtly). The demographic makeup of the poorhouse is quite different from a normal population, however, as it housed the poor, sickly, and insane.

Compared with a sample from the First African Baptist Church (FABC) in Philadelphia, the adult age at death of the Voegtly sample is much lower. Using a grouping of 16+ for adults, Angel et al. (1987) found the average age at death to be 38.9 for females and 44.8 for males. Their ratio of infants to children to adults is 5:3:10, whereas that at Voegtly is 35:39:35, clearly reflecting a much higher infant and child mortality rate at Voegtly. Life expectancy is much higher in the FABC sample until the fortieth year is reached, when values from the two samples become comparable (Crist et al., 1997).

At St. Thomas' Anglican Church in Ontario (Saunders, Herring, and Boyce, 1995), however, the demographic makeup is

closer to that of Voegtly, with 48.9% of the individuals under 15 years of age, about half of these representing infants. As seen in the Voegtly burial records, Saunders, Herring, and Boyce (1995) also found that the summer produced the highest percentage of infant deaths (30%), probably due to diarrheal summer diseases.

SPATIAL ANALYSIS OF AGES AT DEATH WITHIN THE CEMETERY

The estimated ages (based on both the skeletal and the archaeological data) of the individuals found in each sector of the burial map were averaged and plotted (Figure 21). The groups were shaded according to mean age, to determine if there were any age-specific patterns in the burial ground. As evidenced by the chart, all of the groups with mean ages of less than 5 years (lightest gray) are in the northeast quadrant of the cemetery, farthest from the church. Those with a mean age of less than 15 years but greater than 5 years are shaded in darker gray. Again, they show a pattern concentrated in the northeast section of the cemetery.

Adults tended to be buried closer to the church, and it is possible that the higher-status individuals were buried closest to the church. An example of this is the two women who had dental work and expensive grave goods (tortoise-shell comb, jewelry), who were buried within two rows of the church outline (burials 590, 731).

Several of the "adult" areas do contain infants and children. This may be because some families had their own plots or because a child died around the same time as a parent and was buried with him or her, as is noted several times in the parish records.

What might also explain the clustering of children is the greater frequency of child deaths at certain times of the year (i.e., the summer). Perhaps once a grave area was opened, authorities found it convenient to bury other children whose deaths closely followed in the same area.

Clear evidence of age clustering, however, is seen from the plot, and it seems to be a cultural rather than a strictly practical custom.

Antemortem Cultural Modification of the Teeth

Antemortem and cultural modifications of the remains, other than dentistry or medical treatment, were limited to the effects of pipe smoking and perhaps occupational behavior. All of the observed alterations of this nature involved the teeth.

PIPEWEAR

Nine individuals, all males, had dental alterations suggesting the habitual use of a smoking pipe. In two of the individuals (burials 18 and 317), pipewear is considered to be a possible explanation of the alterations. In the other seven (burials 96,

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	n=3 mean=49.2 s.d.=16.6 r=30-60	n=4 mean=40.5 s.d.=18.5 r=27-67.5	n=3 mean=33.5 s.d.=17.3 r=15.5-50	n=4 mean=26.8 s.d.=3.9 r=24-32.5	n=3 mean=21.7 s.d.=8.8 r=11.7-28.5	n=7 mean=9.9 s.d.=11.9 r=0.5-27.5	n=9 mean=2.2 s.d.=2.8 r=0-7.4	n=5 mean=0.9 s.d.=1.1 r=0.2-2.8	n=7 mean=1.0 s.d.=1.5 r=0-4.3	n=7 mean=1.4 s.d.=2.1 r=0.2-6.1	n=7 mean=0.7 s.d.=0.9 r=0-2.5	n=6 mean=0.9 s.d.=1.1 r=0-2.5	n=6 mean=1.0 s.d.=1.0 r=0-3	n=6 mean=1.2 s.d.=0.8 r=0.2-2.1	n=2 mean=0.7 s.d.=0.3 r=0.5, 0.9
2	n=3 mean=40.5 s.d.=27.2 r=16.5-70	n=3 mean=37.8 s.d.=13.4 r=23.5-50	n=3 mean=45.8 s.d.=24.3 r=25-72.5	n=4 mean=36.4 s.d.=27.5 r=9-62.5	n=4 mean=30.8 s.d.=10.9 r=15.7-40	n=5 mean=24.0 s.d.=17.4 r=11.2-52.5	n=6 mean=15.8 s.d.=20.0 r=0.8-45	n=10 mean=1.2 s.d.=1.5 r=0-4.7	n=8 mean=3.3 s.d.=3.7 r=0.5-9.5	n=7 mean=2.1 s.d.=2.3 r=0.2-7.1	n=9 mean=1.7 s.d.=1.9 r=0-5.1	n=8 mean=0.5 s.d.=0.9 r=0-2.2	n=13 mean=1.1 s.d.=0.7 r=0-2.3	n=12 mean=2.0 s.d.=2.0 r=0-5.4	n=1 age=0.5
3	n=3 mean=40.0 s.d.=11.4 r=27.5-50	n=4 mean=43.4 s.d.=17.8 r=21-60	n=3 mean=30.0 s.d.=4.3 r=27.5-35	n=3 mean=40.3 s.d.=9.6 r=32.5-51	n=3 mean=36.7 s.d.=7.3 r=32.5-45	n=3 mean=43.8 s.d.=11.0 r=31.5-52.5	n=8 mean=1.9 s.d.=3.5 r=0-10.4	n=11 mean=1.0 s.d.=2.2 r=0-7	n=11 mean=0.9 s.d.=0.9 r=0-2.8	n=9 mean=0.9 s.d.=1.1 r=0-3.5	n=10 mean=3.8 s.d.=3.8 r=0-11.4	n=10 mean=0.8 s.d.=1.3 r=0-4.1	n=10 mean=0.5 s.d.=0.5 r=0-1.5	n=10 mean=2.2 s.d.=2.3 r=0.5-6	n=1 age=1.8
4	n=3 mean=50.8 s.d.=18.4 r=30-65	n=4 mean=45.6 s.d.=21.0 r=27.5-65	n=3 mean=45 s.d.=4.3 r=40-47.5	n=2 mean=26.5 s.d.=4.2 r=23.5, 29.5	n=5 mean=37.4 s.d.=19.4 r=17-67.5	n=4 mean=29.6 s.d.=10.5 r=17-42.5	n=5 mean=19.2 s.d.=14.3 r=5.8-37.5	n=2 mean=16.5 s.d.=2.8 r=14.6, 18.5	n=11 mean=1.4 s.d.=1.4 r=0-3.5	n=9 mean=0.6 s.d.=0.7 r=0-1.7	n=8 mean=0.8 s.d.=0.8 r=0.2-2.5	n=9 mean=2.0 s.d.=3.1 r=0.2-10	n=12 mean=2.1 s.d.=1.5 r=0-5.2	n=12 mean=5.5 s.d.=10.3 r=0-37.5	n=2 mean=0.4 s.d.=0.2 r=0.2, 0.5
5	n=3 mean=33.7 s.d.=17.9 r=13.5-47.5	n=4 mean=41.9 s.d.=17.0 r=25-60	n=3 mean=38.3 s.d.=2.9 r=35-40	n=5 mean=35.1 s.d.=13.9 r=20.5-55	n=2 mean=38.8 s.d.=5.3 r=35, 42.5	n=7 mean=34 s.d.=17.1 r=0.5-50	n=3 mean=40.3 s.d.=17.0 r=30-60	n=3 mean=38.7 s.d.=22.9 r=23.5-65	n=6 mean=8.9 s.d.=8.3 r=0.5-19	n=7 mean=7.6 s.d.=14.3 r=0.4-40	n=15 mean=7.0 s.d.=12.6 r=0-40	n=13 mean=1.5 s.d.=1.8 r=0-6.2	n=11 mean=1.0 s.d.=1.4 r=0-4	n=13 mean=0.7 s.d.=0.8 r=0-3	n=2 mean=0 s.d.=0 r=0, 0
6	no burials	no burials	no burials	no burials	no burials	n=4 mean=45.6 s.d.=5.5 r=40-52.5	n=2 mean=22.2 s.d.=3.9 r=19.5, 25	n=4 mean=33.8 s.d.=4.8 r=30-40	n=5 mean=30.4 s.d.=13.0 r=13.5-50	n=8 mean=9.8 s.d.=12.5 r=1-38.5	n=12 mean=3.9 s.d.=3.7 r=0-11.5	n=14 mean=2.9 s.d.=2.5 r=0-8	n=18 mean=3.9 s.d.=7.7 r=0-33.5	n=20 mean=0.8 s.d.=0.9 r=0-4	n=2 mean=1.9 s.d.=1.6 r=0.8-3
7	no burials	no burials	no burials	no burials	no burials	n=6 mean=34.9 s.d.=9.5 r=19.5-47.5	n=5 mean=29.9 s.d.=5.3 r=22.5-37.5	n=5 mean=22.1 s.d.=14.8 r=1.3-37.5	n=5 mean=22.4 s.d.=9.0 r=8-30	n=11 mean=10.2 s.d.=15.6 r=0-42.5	n=11 mean=3.8 s.d.=3.9 r=0.5-14	n=9 mean=1.7 s.d.=1.2 r=0.5-4	n=12 mean=2.0 s.d.=1.4 r=0.2-4	n=11 mean=0.8 s.d.=1.1 r=0-4	no burials
8	no burials	no burials	no burials	no burials	no burials	n=3 mean=24.0 s.d.=17.3 r=4.5-37.5	n=5 mean=49.5 s.d.=11.4 r=37.5-65	n=4 mean=43.1 s.d.=1.2 r=42.5-45	n=3 mean=33.2 s.d.=22.9 r=12-57.5	n=2 mean=51 s.d.=26.0 r=32, 70	n=3 mean=0.7 s.d.=0.6 r=0.2-1.4	n=4 mean=2.3 s.d.=1.5 r=1.3-4.5	no burials	no burials	no burials
9	no burials	no burials	no burials	no burials	no burials	n=5 mean=34.1 s.d.=9.3 r=25.5-47.5	n=4 mean=33.9 s.d.=15.8 r=18.5-47.5	n=2 mean=43.7 s.d.=1.8 r=42.5, 45	no burials	no burials	no burials	no burials	no burials	no burials	no burials
10	no burials	no burials	no burials	no burials	no burials	n=4 mean=31 s.d.=3.1 r=27.5-35	no burials	no burials	no burials	no burials	no burials	no burials	no burials	no burials	no burials

FIGURE 21.—Spatial patterning of age at death within Voegtly Cemetery. Coordinates A-1-A-10 contained no burials and were omitted. See figure 6 for locations of coordinates. No shading=mean age > 15 years; light shading=mean age ≤ 5 years; dark shading=mean age > 5 years and ≤ 15 years. (n=number of burials, r=range, s.d.=standard deviation.)

112, 118, 409b, 545, 583, 736), the nature of the evidence is more conclusive.

All of the individuals with alterations were adults. Ages at death of the two youngest were estimated at 25 to 32 years (burial 545) and 23 to 40 years (burial 317). The estimated age at death of the oldest individual (burial 18) is 45 to 60 years.

If a smoker habitually places an abrasive pipe in the same location between the teeth, eventually the teeth at that site become worn to the extent that an opening is present between the teeth when they are in occlusion. In this sample, such openings are generally circular in shape. The number of such openings within each individual varied from one to four. Of the nine individuals with pipewear, four displayed alterations concentrated within one area (all on the left side of the dentition). Two individuals each displayed two openings, one on each side. One individual had three openings, involving both the left and right sides.

The two remaining individuals likely had four openings. In burial 96, the alterations were present on both the left and right sides. In burial 118 the alterations were concentrated on the left side and central incisor area.

In five of the individuals, the perforations created by the pipewear were large enough to be measured. These roughly circular alterations were 6.2–7.7 mm in diameter.

Although the pipewear was concentrated in 19 areas within the dentition of nine individuals, 48 teeth were affected. The alterations were roughly evenly divided between upper and lower teeth. Of the 48 teeth involved, 26 (54%) were from the maxillae and 22 (46%) were from the mandible.

The alterations were concentrated in the anterior dentition, especially in the canine and lateral incisor areas. The teeth most commonly affected were the maxillary left lateral incisors (six) and the mandibular left canine (six). Other teeth involved were the maxillary left and right canines (five each); mandibular left lateral incisors, mandibular left first premolars, and maxillary left first premolars (three each); mandibular right lateral incisors, mandibular right canines, mandibular right first premolars, maxillary left central incisors, maxillary right lateral incisors, and maxillary right first premolars (two each); and the mandibular central incisors, mandibular second premolars, and maxillary right central incisor (one each).

Of the 48 affected teeth, 30 (63%) originated from the left side, and only 18 (38%) originated from the right side. This pattern is similar to that found within the earlier Patuxent Point sample from Maryland (Ubelaker et al., 1996), in which 10 of 16 areas of pipewear were on the left side.

Although many of the alterations were large, none resulted in an apical abscess. This suggests that the alterations had not yet advanced to the point that the pulp chamber was exposed and/or that the rate of abrasion was sufficiently slow to allow the deposition of protective secondary dentin. Within the Patuxent Point sample (Ubelaker et al., 1996), two apical alveolar abscesses appeared to have been caused by extreme pipewear.

OCCUSAL SURFACE GROOVES

The 30- to 45-year-old male of burial 583 displays a notch on the occlusal surface of the maxillary right central incisor, suggestive of a "tailor's notch." Such an alteration could represent an occupational marker produced by the habitual holding of pins, needles, thread, or similar objects between the teeth in work-related activity. Similar grooves were found in two adults in the Patuxent Point sample, a 28- to 33-year-old male and a 26- to 32-year-old female.

Skeletal Measurements

Summary statistics for adult male and adult female skeletal measurements are presented in Tables 7 and 8. Skeletal measurements were recorded using the procedures described in *Standards* (Buikstra and Ubelaker, 1994). The data document the expected size-related sex differences. Values are also within the range expected from individuals of European ancestry.

Dental Measurements

Following standard procedures, permanent teeth were measured with a digital caliper to the nearest tenth of a millimeter. Mesio-distal and bucco-lingual diameters were recorded on left teeth (or on the right, when the left was missing), as suggested in *Standards* (Buikstra and Ubelaker, 1994). Summary statistics are presented in Table 9. Interestingly, all male measurements were larger than those of females.

Living Stature

Living stature was estimated for 32 adult males and 14 adult females from this sample. After sex was determined from skeletal analysis, statures were estimated using Trotter's (1970) formulae for white males and females. Estimates were attempted only when relatively intact femora were available for measurements of maximum length.

Living stature estimated for the 14 females ranged from 153.6 cm (5 ft) to 168.0 cm (5 ft 6 in), with a mean of 160.2 cm (5 ft 3 in) and a standard deviation of 3.82 cm.

For the sample of 32 males, living stature ranged from 162.8 cm (5 ft 4 in) to 181.1 cm (5 ft 11 in), with a mean of 170.0 cm (5 ft 7 in) and a standard deviation of 5.11 cm.

Comparison of these statures with others available from large samples in the published literature suggest they are within the tall end of the range. The female mean of 160.2 cm exceeds the means of all the individual components of the San Francisco Church samples (149–155 cm) from Ecuador, except the most recent box sample (mean stature of 160 cm) (Ubelaker and Ripley, 1999). (Note that these samples probably comprised mostly individuals of Spanish ancestry). The Voegtly value slightly exceeds the means calculated for the English Spitalfields sample (154–159 cm; Molleson et al., 1993). It ap-

TABLE 7.—Skeletal measurements (mm) for adult females. (*n*=measurements taken, s.d.= standard deviation.)

Measurement	<i>n</i>	Mean	s.d.	Range	Measurement	<i>n</i>	Mean	s.d.	Range
Maximum length	12	171.08	8.83	155.0–182.0	Height of scapula	1	153.00	0.00	153.0
Maximum breadth	11	140.55	8.27	130.0–161.0	Maximum length of humerus	8	305.88	10.11	292.0–327.0
Bizygomatic diameter	4	123.00	1.41	122.0–125.0	Epicondylar breadth of humerus	4	57.75	2.87	54.0–61.0
Basion-bregma height	15	126.27	4.92	118.0–136.0	Vertical diameter of head of humerus	10	41.00	1.15	39.0–42.0
Cranial base length	11	95.09	4.28	90.0–104.0	Maximum diameter of humerus	8	21.38	1.51	20.0–24.0
Basion-prosthion length	8	88.75	5.39	83.0–99.0	Minimum diameter of humerus	8	16.75	0.89	15.0–8.0
Maxillo-alveolar breadth	12	59.33	4.40	50.0–64.0	Maximum length of radius	6	223.50	5.54	217.0–232.0
Maxillo-alveolar length	13	49.46	4.59	41.0–57.0	Anterior/posterior diameter of radius	9	11.11	1.36	9.0–14.0
Biauricular breadth	12	117.75	6.44	110.0–136.0	Transverse diameter of ulna	9	15.56	2.13	12.0–18.0
Upper facial height	11	64.09	3.02	60.0–70.0	Maximum length of ulna	4	181.50	114.58	10.0–245.0
Minimum frontal breadth	13	93.54	3.43	88.0–100.0	Dorso-volar diameter of ulna	13	12.85	2.44	9.0–17.0
Upper facial breadth	9	99.44	5.08	94.0–107.0	Transverse diameter of ulna	13	13.77	2.13	11.0–17.0
Nasal height	12	47.67	1.78	45.0–50.0	Physiological length of ulna	5	212.00	10.70	194.0–221.0
Nasal breadth	8	22.88	3.09	18.0–27.0	Minimum circumference of ulna	3	27.67	16.29	9.0–39.0
Orbital breadth	14	40.43	1.45	38.0–43.0	Height of Os coxae	1	216.00	0.00	216.0
Orbital height	15	33.60	2.44	29.0–38.0	Maximum length of femur	17	429.59	15.84	398.0–450.0
Biorbital breadth	8	93.50	3.12	89.0–97.0	Bicondylar length of femur	13	425.23	16.92	393.0–446.0
Interorbital breadth	15	19.67	3.64	12.0–25.0	Epicondylar breadth of femur	1	77.00	0.00	77.0
Frontal chord	17	108.47	4.06	103.0–117.0	Maximum diameter of femur head	26	41.70	1.90	39.0–47.0
Parietal chord	17	104.06	7.41	87.0–116.0	Sagittal subtrochanteric diameter of femur	17	26.27	3.22	21.0–33.0
Occipital chord	12	93.33	6.80	85.0–105.0	Transverse subtrochanteric diameter of femur	19	29.06	2.81	23.05–34.0
Foramen magnum length	14	34.21	3.72	28.0–39.0	Sagittal diameter of femur	15	25.33	2.41	21.0–30.0
Foramen magnum breadth	15	28.13	2.26	22.0–32.0	Transverse diameter of femur	16	25.63	1.45	23.0–28.0
Mastoid length	14	26.07	3.00	23.0–34.0	Circumference of femur	3	80.33	2.52	78.0–83.0
Chin height	18	28.21	3.08	22.0–34.0	Length of tibia	7	342.00	9.78	327.0–352.0
Height of the mandibular body	21	27.31	4.49	13.6–35.0	Maximum proximal epiphyseal breadth of tibia	1	70.00		70.0
Breadth of the mandibular body	26	10.77	1.40	7.94–13.0	Maximum distal epiphyseal breadth of tibia	2	47.50	3.54	45.0–50.0
Bigonial width	5	90.80	5.26	82.0–96.0	Maximum diameter of tibia at nutrient foramen	8	30.25	2.19	26.0–32.0
Bicondylar breadth	4	117.50	5.20	110.0–121.0	Transverse diameter of tibia at nutrient foramen	8	22.63	1.92	20.0–25.0
Minimum ramus breadth	13	27.99	2.87	22.0–33.0	Circumference of tibia at nutrient foramen	3	88.33	5.77	85.0–95.0
Maximum ramus breadth	8	40.61	1.65	38.0–42.84	Maximum diameter of fibula	2	13.50	2.12	12.0–15.0
Maximum ramus height	9	56.78	4.06	49.0–64.0	Maximum length of calcaneus	2	75.00	4.24	72.0–78.0
Mandibular length	10	71.00	5.12	65.0–83.0	Middle breadth of calcaneus	1	42.00		42.0
Mandibular angle	10	129.00	4.59	123.0–138.0					
Maximum length of clavicle	2	138.00	7.07	133.0–143.0					
Anterior/posterior diameter of clavicle	6	10.83	1.94	9.0–14.0					
Vertical diameter of clavicle	7	10.46	2.49	9.0–16.0					

ples (156.5 cm according to Angel et al., 1987, but 160 cm according to Kelley and Angel, 1986).

The Voegtly male mean stature of 170 cm is greater than all the means for the various component samples from the San Francisco Church study (159–169 cm). It compares closely with the male stature means from the Spitalfields sample and falls slightly below the FABC value of 172 cm.

Skeletal Pathology

Observations of skeletal pathology in the Voegtly sample were limited by the variable preservation. Although the remains were examined carefully for abnormalities, including radiographic analysis when appropriate, the examples reported here must be regarded as minimal. The pathological conditions found in the sample document aspects of the health problems of the population, but many examples undoubtedly once present were not observed because of poor preservation. The following presents discussion of the conditions that were de-

tected, revealing the diversity of problems sustained by the population.

TRAUMA

Healed fractures provide evidence for trauma in this sample. Many fractures and similar alterations on the remains were apparently of postmortem origin, resulting from poor preservation; however, some of these alterations may represent antemortem or perimortem fractures that could not be recognized with confidence. The examples of trauma presented here represent those unambiguous cases in which postmortem factors could be ruled out.

Evidence of trauma was detected in 12 individuals, one young infant (burial 483) and 11 adults (burials 22, 34, 112, 155, 183, 348, 437, 624, 697, 725, 732). Of the 11 adults, two were females and nine were males. All of the fractures in adult examples were well remodeled, indicating they had been sustained long before death. The one infant example involving a the degree of remodeling displayed by the adult examples.

TABLE 8.—Skeletal measurements (mm) for adult males. (*n*=measurements taken, s.d.= standard deviation.)

Measurement	<i>n</i>	Mean	s.d.	Range	Measurement	<i>n</i>	Mean	s.d.	Range
Maximum length	21	178.48	6.63	167.0–195.0	Epicondylar breadth of humerus	13	58.51	5.66	50.0–69.0
Maximum breadth	18	149.44	10.69	131.0–176.0	Vertical diameter of head of humerus	17	46.29	2.11	43.0–51.0
Bizygomatic diameter	3	133.00	8.89	123.0–140.0	Maximum diameter of humerus	29	23.39	2.70	19.0–31.0
Basion-bregma height	22	131.95	5.58	120.0–145.0	Minimum diameter of humerus	30	18.63	1.69	17.0–25.0
Cranial base length	19	98.63	5.58	89.0–117.0	Maximum length of radius	12	232.92	22.73	186.0–263.0
Basion-prosthion length	11	90.73	6.07	81.0–99.0	Anterior/posterior diameter of radius	28	11.86	1.48	10.0–16.0
Maxillo-alveolar breadth	31	60.19	4.09	50.0–70.0	Transverse diameter of ulna	29	16.10	1.61	14.0–21.0
Maxillo-alveolar length	26	50.92	2.50	47.0–55.0	Maximum length of ulna	11	214.73	85.06	17.0–286.0
Biauricular breadth	20	125.15	5.73	115.0–136.0	Dorso-volar diameter of ulna	32	13.84	2.02	10.0–19.0
Upper facial height	14	71.21	4.85	58.0–79.0	Transverse diameter of ulna	30	16.00	2.17	11.0–20.0
Minimum frontal breadth	26	97.83	5.56	90.0–111.0	Physiological length of ulna	15	221.07	14.86	199.0–244.0
Upper facial breadth	10	104.10	12.25	72.0–116.0	Minimum circumference of ulna	5	42.40	9.42	35.0–55.0
Nasal height	19	51.37	3.40	47.0–59.0	Max. transverse diameter at sacrum base	2	45.00	4.24	42.0–48.0
Nasal breadth	14	23.64	2.87	20.0–30.0	Height of Os coxae	1	214.00	0.00	214.0
Orbital breadth	21	41.86	2.69	37.0–47.0	Ischium length	1	98.00	0.00	98.0
Orbital height	21	34.19	2.20	30.0–38.0	Maximum length of femur	44	455.66	20.94	403.0–503.0
Biorbital breadth	12	98.17	5.67	91.0–109.0	Bicondylar length of femur	35	451.31	21.95	402.0–501.0
Interorbital breadth	24	20.00	2.52	14.0–23.0	Epicondylar breadth of femur	4	78.00	7.35	72.0–88.0
Frontal chord	20	11.80	5.95	99.0–120.0	Maximum diameter of femur head	54	47.89	2.31	43.0–52.0
Parietal chord	21	111.90	5.79	102.0–123.0	Sagittal subtrochanteric diameter of femur	37	28.84	4.32	23.0–50.0
Occipital chord	24	95.17	5.95	84.0–111.0	Transverse subtrochanteric diameter of femur	39	30.67	3.48	25.0–39.0
Foramen magnum length	27	35.52	2.12	32.0–40.0	Sagittal diameter of femur	40	27.56	2.95	20.0–34.0
Foramen magnum breadth	30	30.40	1.96	28.0–37.0	Transverse diameter of femur	41	27.36	2.42	24.0–34.0
Mastoid length	33	29.88	4.15	21.0–42.0	Circumference of femur	17	79.12	20.52	25.0–97.0
Chin height	30	32.79	3.09	27.0–39.0	Length of tibia	10	364.08	24.66	320.0–411.0
Height of the mandibular body	46	31.18	4.72	12.0–39.0	Maximum proximal epiphysal breadth of tibia	6	71.00	6.54	65.0–81.0
Breadth of the mandibular body	50	11.71	1.69	8.0–15.0	Maximum distal epiphyseal breadth of tibia	8	49.75	5.44	41.0–56.0
Bigonial width	14	102.00	6.53	89.0–111.0	Maximum diameter of tibia at nutrient foramen	20	32.45	3.15	28.0–39.0
Bicondylar breadth	5	124.60	4.22	120.0–131.0	Transverse diameter of tibia at nutrient foramen	24	25.08	2.54	21.0–33.0
Minimum ramus breadth	23	30.24	1.87	28.0–37.0	Circumference of tibia at nutrient foramen	13	86.69	16.91	35.0–102.0
Maximum ramus breadth	12	42.50	5.87	31.0–53.0	Maximum length of fibula	5	366.00	20.02	347.0–399.0
Maximum ramus height	23	61.61	4.83	53.0–74.0	Maximum diameter of fibula	8	12.63	1.30	10.0–14.0
Mandibular length	22	73.73	4.12	66.0–86.0	Maximum length of calcaneus	5	78.20	2.77	76.0–83.0
Mandibular angle	24	127.88	6.13	115.0–141.0	Middle breadth of calcaneus	5	41.40	4.22	36.0–46.0
Maximum length of clavicle	4	106.75	57.41	54.0–165.0					
Anterior/posterior diameter of clavicle	9	13.33	2.45	10.0–18.0					
Vertical diameter of clavicle	8	12.13	2.03	9.0–15.0					
Maximum length of humerus	24	325.46	18.32	294.0–365.0					

The tibia and ulna were the most common fractured bones with three examples each. Two fibulae, radii, femora, and humeri displayed healed fractures. Burial 624 showed general trauma to the ankle area, but the specific bones could not be recognized.

TRAUMA-RELATED PERIOSTEAL LESIONS

Four burials presented evidence of infection likely associated with trauma. In each case, evidence of healed trauma is on another bone, and that trauma appeared to be the source of the infection. The burials (155, 183, 624, 697) are of four adults, two males and two females. The bones involved are the tibia (two examples), femur, fibula, talus, and radius.

PERIOSTEAL LESIONS OF NON-TRAUMATIC ORIGIN

Eleven burials presented evidence of abnormal periosteal bone formation that is not obviously associated with bone

trauma. These individuals were one 1.4-year-old infant (burial 412), one 8- to 9-year-old child (burial 617), one 13- to 14-year-old adolescent (burial 623) and eight adults (burials 263, 328, 437, 586, 693, 703, 706, 733). Of the adults, seven were males and one was female.

Seven of the individuals showed periosteal lesions with little remodeling, indicating the lesions were relatively active at the time of death. Four individuals presented lesions with abundant evidence of remodeling, indicating the lesions were not active at the time of death. One individual (burial 706) showed abnormal periosteal lesions that were remodeled in the maxilla (probably caused by a chronic sinus infection) but active at the time of death in two ribs.

The bone most frequently presenting non-traumatic periosteal lesions is the tibia (eight bones), followed by the femur (five), rib (three), fibula (two), occipital (one), maxilla (one) and temporal (one).

TABLE 9.—Measurements (mm) of permanent teeth. (*n*=number of teeth measured, s.d.=standard deviation.)

Sex	Maxilla bucco-lingual measurements																							
	I ¹			I ²			C			PM ¹			PM ²			M ¹			M ²			M ³		
	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.
Female	35	6.94	0.41	33	6.04	0.40	36	7.84	0.46	40	8.79	0.55	34	9.06	0.52	33	11.12	0.55	34	10.96	0.67	36	10.14	1.04
Male	50	7.22	0.57	47	6.47	0.56	49	8.46	0.67	55	9.16	0.62	48	9.20	0.87	54	11.45	0.92	60	11.46	1.12	51	11.14	1.19
Sex	Mandible bucco-lingual measurements																							
	I ₁			I ₂			C			PM ₁			PM ₂			M ₁			M ₂			M ₃		
	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.
Female	27	5.76	0.35	33	6.10	0.31	36	7.28	0.42	33	7.53	0.59	30	7.96	0.57	27	10.14	0.46	27	9.73	0.66	18	9.64	0.52
Male	35	5.99	0.40	42	6.42	0.41	54	7.84	0.58	52	7.88	0.64	50	8.25	0.66	34	10.46	0.65	60	10.24	0.74	47	10.10	0.82
Sex	Maxilla mesio-distal measurements																							
	I ¹			I ²			C			PM ¹			PM ²			M ¹			M ²			M ³		
	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.
Female	31	8.33	0.46	30	6.37	0.60	38	7.50	0.44	36	6.70	0.36	36	6.60	0.55	34	10.34	0.62	35	9.31	0.71	35	8.60	1.08
Male	40	8.67	0.80	34	6.86	0.62	47	7.88	0.55	56	6.97	0.66	51	6.64	0.54	53	10.37	1.03	61	9.38	0.82	52	8.92	0.94
Sex	Mandible mesio-distal measurements																							
	I ₁			I ₂			C			PM ₁			PM ₂			M ₁			M ₂			M ₃		
	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.	<i>n</i>	Mean	s.d.
Female	26	5.36	0.38	35	5.80	0.39	35	6.48	0.35	34	6.76	0.43	31	6.91	0.37	28	10.58	0.57	29	10.17	0.77	18	10.29	0.50
Male	36	5.26	0.48	45	5.97	0.46	52	7.03	0.79	56	6.84	0.53	60	6.92	0.59	34	10.92	0.74	58	10.59	1.07	49	10.51	0.98

LYTIC LESIONS

Five burials (32, 392, 639, 698, 736) presented evidence of lytic lesions of nonspecific diagnosis. These lesions were found in five adults, four males and one female. The bones involved were the talus, femur, radius, metatarsal, and parietal.

PERTHE'S DISEASE

One example is found of probable Perthe's disease. The 30- to 45-year-old male from burial 382 displayed the femur deformations and related changes associated with this disease.

HYPEROSTOSIS FRONTALIS INTERNA

Only one individual, the 50- to 80-year-old female from burial 720, presented this condition. Hyperostosis frontalis interna represents a condition generally occurring more often in females than in males (Herskovitz et al., 1999).

ARTHRITIC CONDITIONS

Many adult skeletons presented evidence of arthritic change. In fact, relatively minor osteophytosis and joint changes were common and assisted in the estimation of age at death. Some manifestations of arthritic change were severe or indicated unusual use of particular parts of the body.

Thirteen burials, of 10 males and three females, presented evidence of extreme arthritic change in the vertebrae. These vertebrae displayed various manifestations of fusion, extreme porosity, extreme osteophytosis, or related problems. The

youngest individual is the 35- to 45-year-old male from burial 565. The oldest is the 65- to 80-year-old male from burial 698.

Eleven individuals, six males and five females, displayed severe arthritic change in the bones of the shoulder (proximal humerus and/or glenoid fossa of the scapula). Ages at death ranged from the 27- to 33-year-old female of burial 449 to the 65- to 80-year-old male of burial 698.

Unusual arthritic change in the bones of the elbow and forearm was found in 10 individuals, nine males and one female. Their ages at death ranged from the female aged 27–33 years from burial 449 to the male aged 65–80 years from burial 698.

Depressions for Schmorl's nodes (believed to be herniations of the intervertebral discs) were found in the vertebrae of only three individuals, all males. Their ages at death were 35–40, 23–28, and 25–34. These depressions are frequently interpreted as evidence of extensive exercise involving the back, such as lifting heavy loads, pulling, and pushing (Ubelaker et al., 1996).

Extreme arthritic change on clavicles, usually concentrated on the sternal ends, was noted on five individuals, three males and two females. Their ages at death ranged from 25–34 years to 60–80 years. Two of these individuals also displayed similar alterations on the proximal humerus (burial 620) and glenoid fossa of the scapula (burial 629).

Arthritic problems of the hip, concentrated in the acetabulum and femoral head, were noted for five individuals, two males and three females. Their estimated ages at death were 60–80, 35–50, 60–80, 50–65, and 40–55.

Three adults, two females and one male, displayed extreme arthritic change in the ankle area (distal tibia, distal fibula, cal-

caneus). Their estimated ages at death were 40–60, 35–45, and 35–45.

Only one individual, the male aged over 50 years from burial 721, presented extreme arthritic change in the wrist area (distal radius).

The arthritic conditions listed above represent a combination of general age changes and problems specific to particular parts of the body related to activity and perhaps occupation.

LINES OF INCREASED DENSITY

Lines of increased density, or so-called Harris lines, represent largely horizontal bands of comparatively dense bone within the diaphyses of long bones. Best viewed radiographically, they likely represent areas of bone produced prior to epiphyseal union during a period of slowed longitudinal growth. Disease conditions and nutritional problems can create slowed longitudinal growth, so the lines are of interest as a general indicator of subadult morbidity. Because the lines can be altered during later remodeling and have an unpredictable association with specific disease or nutritional events, they provide only partial evidence of morbidity.

Following other published work, the distal tibia was chosen for examination of lines of increased density. Unfortunately, because this area of the skeleton in the Voegtly sample was poorly preserved, sufficiently intact distal tibiae were available for only nine individuals: eight adults (six males, two females) and one 13- to 14-year-old.

Seven (78%) of these individuals revealed no lines of increased density. The male aged 40–55 years from burial 54 displayed two lines on the distal left tibia, 10 mm and 35 mm from the distal metaphysis. The female aged 18–21 years from burial 546 presented five lines on the right distal tibia at 41 mm, 47 mm, 52 mm, 60 mm, and 82 mm from the distal metaphysis.

CRIBRA ORBITALIA

Cribra orbitalia refers to areas of abnormal porosity within the superior areas of the orbits on the frontal. This condition is

usually thought to be associated with anemia, but other disease factors may also be involved.

Examples of cribra orbitalia were found in 11 individuals in the Voegtly sample, four adults (three females and one male) and seven subadults. In nine of the individuals, the condition presented evidence of remodeling, suggesting the condition was not active at the time of death. In one individual, the young child of burial 536, the condition had been active in both orbits at the time of death.

Dental Pathology

Data on dental diseases and their effects on the teeth were recorded using procedures defined in *Standards* (Buikstra and Ubelaker, 1994) and in the protocol section of this report. Dental pathological conditions reported here are carious lesions, alveolar abscesses, antemortem loss of teeth, enamel hypoplasia, and occlusal attrition. Also included is discussion of dental therapeutics. Although dental restorations technically are “cultural,” they are included in this section because they represent attempts to resolve problems created by dental pathology.

Table 10 presents the numbers of the permanent teeth that were examined. These numbers include only those teeth that were fully erupted, not those that were present but were neither fully formed nor fully developed. The numbers of additional teeth that were fully erupted and present but damaged to the point that measurements or other observations were not possible are indicated in parentheses. The table reveals that 3016 permanent teeth were present, 927 from females, 1584 from males, and 505 from individuals of unknown sex (usually subadults). Although this table provides useful information on the total numbers of teeth examined, these numbers differ slightly from those used to calculate frequencies of dental pathology. The frequency calculations were based on data entry for each specific category of disease. For example, the number of teeth examined for carious lesions (2738) is lower than the total reported in Table 10 (3016) because observations for carious lesions were not possible for 278 of the teeth reported in Table 10.

TABLE 10.—Erupted permanent teeth present (numbers in parentheses represent additional teeth that are present but damaged). “?”=sex indeterminate.

Sex	Right maxilla								Left maxilla								Total
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³	
Female	23(3)	29(3)	28(3)	24(5)	29(2)	32(3)	34(3)	28(4)	31(3)	30(5)	27(5)	28(2)	32(3)	30(6)	28(2)	30(2)	463(54)
Male	43	54(2)	47(3)	47(3)	57(2)	54(2)	45(4)	47(2)	52(1)	47(1)	52(2)	47(3)	51(2)	37(2)	53(1)	40	773(30)
?	2	15(1)	31(1)	13(1)	11(1)	12	14(2)	22(1)	25	21(1)	11(1)	12(1)	11(1)	30(2)	12(1)	4	246(14)
Total	68(3)	98(6)	106(7)	84(9)	97(5)	98(5)	93(9)	97(7)	108(4)	98(7)	90(8)	87(6)	94(6)	97(10)	93(4)	74(2)	1482(98)
Sex	Right mandible								Left mandible								Total
	M ₃	M ₂	M ₁	PM ₂	PM ₁	C	I ₂	I ₁	I ₁	I ₂	C	PM ₁	PM ₂	M ₁	M ₂	M ₃	
Female	12(2)	22(2)	21(4)	25(2)	35(2)	38(3)	41(2)	38(3)	35(2)	36(3)	34(2)	33(3)	28(2)	28(5)	23(2)	15(1)	464(40)
Male	43(1)	51(3)	35	59(1)	57(6)	54(9)	55(9)	45(8)	48(5)	54(7)	61(5)	60(4)	56(1)	38(4)	55	40(1)	811(64)
?	4	13	32(1)	11	12	11(1)	24	22	125	23	14(1)	11	11	31	12(1)	3	259(4)
Total	59(3)	86(5)	88(5)	95(3)	104(8)	103(13)	120(11)	105(11)	108(7)	113(10)	109(8)	104(7)	95(3)	97(9)	90(3)	58(2)	1534(108)

CARIOUS LESIONS

Caries represent a disease in which bacteria are allowed to colonize on tooth surfaces and ultimately weaken and destroy aspects of that surface. The diseased tooth structure may eventually collapse, producing a carious lesion or cavity. Analysis of the teeth in the Voegtly sample allowed assessment of the frequency and location of these lesions.

Within the deciduous dentition, carious lesions were relatively common. Of 834 deciduous teeth examined for lesions, 261 (31.3%) had at least one lesion. Lesions were more common in the maxillary dentition than in the mandibular dentition. About 35% of all deciduous maxillary teeth were carious, compared with 27.5% of mandibular teeth (Table 11). Table 11 also documents that carious lesions were concentrated in the posterior dentition and the maxillary central incisors. Frequencies among these teeth ranged from 29% to 43%. Frequencies of carious teeth among the remainder of the dentition ranged from 6% of mandibular left lateral incisors to 33% of mandibular left canines.

Frequencies of carious lesions in permanent teeth are presented in detail in Table 12. Of the total of 2738 permanent teeth examined for carious lesions, 780 (28.5%) were carious. Carious lesions were more common in females (40.0%) than in males (23.1%). This may be because of a number of yet-unknown factors, but known factors are generally believed to include physiological (i.e., female teeth erupt before male teeth) and behavioral (such as dietary) differences (Larsen et al., 1991). Differences in enamel thickness, chemistry of the saliva, or more crowding of the dentition due to a smaller alveolus in females may also be factors.

Table 12 also presents frequency data for each tooth. The table shows that carious teeth were more common in the maxilla (32.9%) than in the mandible (24.0%) for both males and females. As in the deciduous dentition, carious lesions were more commonly found in the posterior teeth. Within the maxilla, the frequencies of teeth with lesions ranged from 30% to 44% among the premolars and molars, but only 16% to 32% in the more anterior teeth. Within mandibular teeth, similar frequencies of 21% to 40% in the premolars and molars compare with a range of 14% to 20% for the more anterior teeth.

Table 13 presents data on the various locations of carious lesions. Both in the maxilla (listed first) and the mandible, lesions were most commonly found on interproximal surfaces (55.5%, 49.9%) followed by occlusal surfaces (15.7%, 15.7%). Patterns of frequency were similar for large lesions (13.3%, 13.3%), cervical areas (8.0%, 14.4%), smooth surfaces (5.4%, 4.3%), and roots (2.0%, 2.4%).

Tables 14 and 15 show that males and females have similar frequencies of the distribution of lesions on different tooth surfaces.

Comparison of the Voegtly frequencies of carious teeth with other samples in the published literature is complicated by varying expressions of the data. Information on dental caries in some studies is reported as the percentage of individuals with at least one carious tooth. Because this expression does not take into account the variable representation of teeth present in different individuals, data from these sources are difficult to use in comparative studies.

Some data on carious lesions in the published literature are expressed in a manner facilitating comparison. For example, in the Voegtly sample 28.5% of permanent teeth were carious. A

TABLE 11.—Carious deciduous teeth (carious teeth/observations).

Right maxilla					Left maxilla					Total	%
m ²	m ¹	c	i ²	i ¹	i ¹	i ²	c	m ¹	m ²		
24/61	24/59	11/38	6/28	13/30	13/33	6/24	6/37	22/58	24/59	149/427	34.9
Right mandible					Left mandible					Total	%
m ₂	m ₁	c	i ₂	i ₁	i ₁	i ₂	c	m ₁	m ₂		
23/58	25/59	5/31	3/38	2/23	5/28	2/32	8/24	23/59	16/55	112/407	27.5

TABLE 12.—Carious permanent teeth (carious teeth/observations). “?”=sex indeterminate.

Sex	Right maxilla								Left maxilla								Total	%
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³		
Female	12/27	15/32	13/29	17/31	16/31	13/32	8/27	6/22	9/25	14/26	13/29	12/27	13/34	18/34	17/29	13/29	209/464	45.04
Male	12/38	15/53	16/48	12/42	16/51	7/45	7/40	4/41	10/45	10/41	8/48	13/43	11/48	12/38	18/52	11/34	182/707	25.74
?	0/2	6/15	12/29	5/12	4/9	3/9	3/14	3/19	4/20	2/15	0/10	5/11	4/11	8/27	6/13	1/4	66/220	30.00
Total	24/67	36/100	41/106	34/85	36/91	23/86	18/81	13/82	23/90	26/82	21/87	30/81	28/93	38/99	41/94	25/67	457/1391	32.85
Sex	Right mandible								Left mandible								Total	%
	M ₃	M ₂	M ₁	PM ₂	PM ₁	C	I ₂	I ₁	I ₁	I ₂	C	PM ₁	PM ₂	M ₁	M ₂	M ₃		
Female	6/12	11/22	6/17	7/22	9/30	9/31	9/34	9/33	8/31	7/30	9/31	11/33	8/27	16/28	13/23	5/13	143/417	34.29
Male	13/41	19/53	9/29	9/53	11/51	9/52	7/47	7/42	4/42	7/48	6/54	11/58	9/52	8/36	17/50	7/36	153/744	20.56
?	0/3	3/11	7/25	1/8	1/9	1/11	0/13	0/14	0/15	0/14	1/11	0/8	1/8	9/23	3/10	0/3	27/186	14.52
Total	19/56	33/86	22/71	17/83	21/90	19/94	16/94	16/89	12/88	14/92	16/96	22/99	18/87	33/87	33/83	12/52	323/1347	23.98

similar value of 18.5% was reported for the New York Highland Park subadult sample (Higgins and Sirianni, 1995). The range of this value in the Ecuador samples is 5.0% to 32%

(Ubelaker and Ripley, 1999). The value in the Spitalfields sample is 17.9% (Cox, 1996). Larsen et al. (1991) presented values derived from the literature on eastern North American Na-

TABLE 13.—Locations of carious lesions of permanent teeth, all individuals.

Location (surface)	Right maxilla								Left maxilla							
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³
Occlusal (1)	8	15	15		5								1	10	20	11
Interproximal (2)	9	12	20	23	26	20	13	9	18	23	18	29	23	20	25	12
Smooth (3)	5	4	3				3	2	4	2	1			1	2	2
Cervical (4)	5	3	3	1	5	4	1	1	5	1	1	3	3	2	4	1
Root (5)	1	1		2	2									1	1	3
Large (6)	5	8	6	10	4	3	2		1	2	4	4	4	11	7	1
Location (surface)	Right mandible								Left mandible							
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³
Occlusal (1)	7	9	8	1									1	10	17	5
Interproximal (2)	4	15	14	13	15	11	16	16	7	9	11	16	12	16	8	1
Smooth (3)	1	4	2			1		1			1			2	2	2
Cervical (4)	2	1	2	3	4	3	2	3	4	8	4	6	2	1	4	4
Root (5)	1		1	1	1	1				1	2	1				
Large (6)	4	6	6	2	4	3	1		1	1	1	1	2	13	3	1

TABLE 14.—Locations of carious lesions of permanent teeth in females.

Location (surface)	Right maxilla								Left maxilla							
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³
Occlusal (1)	3	5	5		2									2	7	3
Interproximal (2)	6	6	6	9	10	11	6	4	6	10	11	11	10	11	13	7
Smooth (3)	4	2					1	1	1	1	1				1	2
Cervical (4)	2	1			3	3	1	1	2	1	1	1	2	1	2	1
Root (5)		1	2	2	1									1		2
Large (6)	3	3	2	7	3	2	1		1	2	2	3	3	6	4	1
Location (surface)	Right mandible								Left mandible							
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³
Occlusal (1)	1	5											1	3	9	
Interproximal (2)	1	4	4	4	8	7	9	10	6	3	6	9	5	7	2	1
Smooth (3)		1	1								1			1	1	2
Cervical (4)	3		1	1	2	1	1	2	3	4	2	2	1		2	3
Root (5)										1	1					
Large (6)	2	2	2	2	2	1			1	1	1	1	2	8	2	

TABLE 15.—Locations of carious lesions of permanent teeth in males.

Location (surface)	Right maxilla								Left maxilla							
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³
Occlusal (1)	5	6	7		2								1	5	9	7
Interproximal (2)	3	4	4	9	12	5	5	3	7	10	7	11	9	5	7	5
Smooth (3)	1	2	1				2	1	3	1					1	
Cervical (4)	1	2	1	1	2	1			1			2	1	1	2	
Root (5)	1				1										1	1
Large (6)	2	4	4	3	1	1	1				2	1	1	4	3	
Location (surface)	Right mandible								Left mandible							
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³
Occlusal (1)	6	7	4	1										1	9	5
Interproximal (2)	3	10	5	8	6	6	7	6	3	6	5	7	8	4	5	
Smooth (3)	1	3	1					1							1	
Cervical (4)	1	3	1	1	2	1	1	1	3	4	2	4	1	1	3	
Root (5)	1	1	1		1	1					1	1	1			1
Large (6)	2	4	2	1	2	2	1					1		3	1	1

tive American samples of archeological origin ranging from 0.1% to 43.4%. Data from the Voegtly sample fall within the high range of those reported.

ALVEOLAR ABSCESSSES

When the pulp chamber of a tooth is exposed as a result of destruction of the surrounding tooth structures by caries, trauma, or other factors, invading bacteria can create an abscess in the alveolar bone. Even though the resulting lesion is in the bone of the maxilla or mandible, it can usually be associated with the tooth in which the infection originated. Thus data on alveolar abscesses are scored by noting the tooth with which the abscess is associated.

In the Voegtly sample, 1612 observations documented 79 abscesses associated with permanent teeth (4.9%). For females, 38 abscesses were noted in 532 observations (7.1%). For males, 40 abscesses were noted in 1039 observations (3.8%). Table 16 presents the number of abscesses and observations for abscesses for each tooth. The table shows that like carious lesions, abscesses were more common in the maxilla (8.5%) than in the mandible (2.5%). The most common site of alveolar abscess is in association with the maxillary left first molar (19.2%), followed by the maxillary right first molar (17.6%), maxillary right second premolar (17.1%), and maxillary right third molar (14.3%). Frequencies for the other teeth ranged

from 0 to 11.9%. Note that alveolar abscess formation is frequently followed by tooth loss and alveolar remodeling. Thus many of the teeth lost antemortem may have originally involved abscesses, but the evidence was lost through remodeling and could not be included in the statistics presented above. The similar distribution of alveolar abscesses and carious lesions likely indicates that the most common factor leading to abscess is caries. The higher rate of abscesses in females is probably related to their higher caries rate.

PERMANENT TEETH LOST ANTEMORTEM

Antemortem tooth loss can be detected through observations on the alveolus. A tooth was scored as being lost antemortem if it was not present and there was evidence of alveolar remodeling in the corresponding root socket. The statistics presented here reflect the number of observations of antemortem loss compared with the number of total observations (teeth present, teeth lost antemortem, and teeth lost postmortem).

Of 4079 observations for tooth loss, 684 teeth (16.8%) had been lost antemortem. As with carious lesions and alveolar abscesses, females had a higher frequency of antemortem loss (21.8%) than did males (17.6%).

Table 17 presents the distribution by tooth of the frequencies of antemortem loss. The table shows that antemortem loss is more common in the mandible (20.8%) than in the maxilla

TABLE 16.—Frequencies of alveolar abscesses associated with permanent teeth (abscessed teeth/observations).
“?”=sex indeterminate.

Sex	Right maxilla								Left maxilla								Total	%
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³		
Female	2/14	0/18	4/13	4/14	1/13	0/8	0/9	1/8	1/7	0/14	1/12	4/15	4/19	4/18	1/19	0/14	27/215	12.5
Male	3/21	2/35	5/31	3/25	1/26	0/23	2/21	0/18	1/14	1/20	1/22	1/27	0/31	5/30	1/37	1/29	27/410	6.3
?	0/0	0/2	0/7	0/2	0/2	0/2	0/2	0/1	0/1	0/0	0/0	0/0	0/1	1/4	0/1	0/0	1/25	4.0
Total	5/35	2/55	9/41	7/51	2/41	0/33	2/32	1/27	2/22	1/34	2/34	5/42	4/51	10/52	2/57	1/43	55/650	8.5
Sex	Right mandible								Left mandible								Total	%
	M ₃	M ₂	M ₁	PM ₂	PM ₁	C	I ₂	I ₁	I ₁	I ₂	C	PM ₁	PM ₂	M ₁	M ₂	M ₃		
Female	0/12	1/19	0/15	0/18	1/22	1/22	1/22	1/21	0/22	0/21	1/21	1/22	0/20	3/23	1/22	0/15	11/317	3.5
Male	0/38	4/42	0/30	0/40	1/43	0/45	1/39	1/34	2/33	1/39	0/44	0/42	0/42	2/39	1/43	0/36	13/629	2.1
?	0/0	0/1	0/6	0/0	0/0	0/0	0/0	0/1	0/1	0/0	0/0	0/1	0/1	0/4	0/1	0/0	0/16	0
Total	0/50	5/62	0/51	0/58	2/65	1/67	2/61	2/56	2/56	1/60	1/65	1/65	0/63	5/66	2/66	0/51	24/962	2.5

TABLE 17.—Frequencies of antemortem tooth loss (losses/observations). “?”=sex indeterminate.

Sex	Right maxilla								Left maxilla								Total	%
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³		
Female	4/33	3/38	9/41	3/34	8/39	0/37	4/42	3/37	5/43	4/42	2/37	7/38	6/41	9/45	6/37	6/38	79/622	12.7
Male	16/63	7/63	19/69	12/65	6/70	4/69	3/60	3/57	3/66	6/61	6/66	11/66	11/66	24/65	10/66	15/58	156/1030	15.1
?	0/2	0/15	0/32	0/14	0/12	0/12	0/16	0/23	0/25	0/22	0/12	0/13	1/14	0/32	0/13	0/4	1/261	0.4
Total	20/98	10/116	28/142	15/113	14/121	4/118	7/118	6/117	8/134	10/125	8/115	18/117	18/121	33/142	16/116	21/100	236/1913	12.3
Sex	Right mandible								Left mandible								Total	%
	M ₃	M ₂	M ₁	PM ₂	PM ₁	C	I ₂	I ₁	I ₁	I ₂	C	PM ₁	PM ₂	M ₁	M ₂	M ₃		
Female	21/37	20/45	19/45	16/45	8/47	6/49	6/50	7/48	7/46	5/46	8/38	11/47	16/47	19/52	23/48	24/39	216/729	29.6
Male	25/73	22/77	38/73	15/76	8/75	3/76	3/70	6/67	5/67	5/71	4/72	5/74	14/76	31/76	23/78	23/65	230/1166	19.7
?	1/5	1/15	0/33	0/11	0/12	0/12	0/24	0/22	0/25	0/24	0/16	0/11	0/11	1/32	1/14	1/4	5/271	1.8
Total	47/115	43/137	57/151	31/132	16/134	9/137	9/144	13/137	12/138	10/141	12/126	16/132	30/134	51/160	47/140	48/108	451/2166	20.8

(12.3%). As in evidence of dental disease presented earlier, posterior teeth revealed higher frequencies of loss than anterior teeth. In the mandible the frequency of antemortem loss ranged from 31.4% to 44.4% in molars, 11.9% to 23.5% in premolars, and 6.3% to 9.5% in canines and incisors.

In maxillary teeth, antemortem loss ranged from 8.6% to 23.2% in molars, 11.6% to 15.4% in premolars, and 3.4% to 8.0% in canines and incisors.

The overall value of 16.8% tooth loss exceeds the similar value of 12.5% reported for the Spitalfields sample (Cox, 1996).

CONGENITAL ABSENCE OF TEETH

When a permanent tooth is absent and the associated area of the alveolus reveals no evidence of its prior presence (e.g., empty tooth sockets), two interpretations are possible: antemortem loss or congenital absence. If antemortem loss was not apparent from the nature of the associated alveolus, radiographs were taken to examine the internal bone structure. Such radiographic evidence was then used to differentiate the two conditions.

Using this approach, 15 examples of congenital absence were discovered, eight in females and seven in males. Table 18

presents congenital absence by tooth. As expected, the examples were relatively evenly divided between the maxillary and mandibular dentitions but mostly involved third molars.

DENTAL ATTRITION

Dental attrition refers to the loss of tooth structure on the occlusal surface caused by the process of mastication and other factors. To document the extent of dental attrition of permanent teeth in the Voegtly sample, the scoring system recommended in *Standards* (Buikstra and Ubelaker, 1994) was used. For the incisors, canines, and premolars, the eight-stage system of Smith (Buikstra and Ubelaker, 1994:52) was used. The molars were classified using the 10-stage system of Scott (Buikstra and Ubelaker, 1994:53).

Information on the anterior teeth (Smith system) is summarized in Table 19. Similar information on the molars is presented in Tables 20 and 21. In general, these tables document a general age progression of dental attrition; they also document considerable variability. This variability reflects sampling factors and unusual attrition patterns created by antemortem loss of teeth and variability in occlusion. Note that although Smith's anterior wear system presents progressive stages of wear from

TABLE 18.—Congenitally absent permanent teeth. “?”=sex indeterminate.

Sex	Right maxilla								Left maxilla								Total
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³	
Female	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	5
Male	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	1	0	1	0	0	0	0	0	0	0	0	0	0	1	3	8
Sex	Right mandible								Left mandible								Total
	M ₃	M ₂	M ₁	PM ₂	PM ₁	C	I ₂	I ₁	I ₁	I ₂	C	PM ₁	PM ₂	M ₁	M ₂	M ₃	
Female	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
Male	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	7

TABLE 19.—Attrition of anterior permanent teeth, scored using the 8-stage system of Smith (Buikstra and Ubelaker, 1994:52). (n=number of teeth scored.)

Age group	Maxillary anterior tooth scores														
	I ¹			I ²			C			PM ¹			PM ²		
	n	Mode	Range	n	Mode	Range	n	Mode	Range	n	Mode	Range	n	Mode	Range
0–19.9	24	2	1–3	21	1, 2	1–3	19	1	1–3	18	1	1–2	19	1	1–3
20–34.9	34	3	1–5	34	3	1–5	44	3	1–5	52	3	1–5	48	2	1–5
35–49.9	30	3	2–7	21	3	1–7	25	4	1–6	25	3, 4	1–6	25	2, 4	1–6
50+	6	3, 5	2–6	6	4	3–6	9	4	3–6	7	4	2–7	5	2	2–8
Age group	Mandibular anterior tooth scores														
	I ₁			I ₂			C			PM ₁			PM ₂		
	n	Mode	Range	n	Mode	Range	n	Mode	Range	n	Mode	Range	n	Mode	Range
0–19.9	19	2	1–3	20	2	1–3	15	2	1–3	17	1	1–2	16	1	1–2
20–34.9	36	3	2–6	41	3	1–6	43	3	1–6	36	1	1–5	48	2	1–7
35–49.9	20	5	2–6	23	3	2–6	28	4	1–6	25	4	1–6	21	4	1–6
50+	3	4	3–4	6	3, 4	3–6	8	4	3–5	6	2, 5	2–6	5	2, 5	2–6

one to eight, the mode values in the 50-plus age category ranged from three to five.

A similar pattern is seen in the molars, which were scored using the 10-stage Scott system. In the 50-plus age category, mode values range considerably but mostly do not approach the upper end of the classification system. This suggests a slow rate of dental wear in this sample, likely reflecting both cooking habits and a diet that did not present abrasive materials.

HYPOPLASIA

Hypoplastic defects are areas of abnormal development on the tooth crown, thought to represent episodes of physiological stress sustained by the individual during the growth period. The summary statistics presented here omit hypocalcifications. Information on these defects, as well as more detailed information on the types of defects present, are discussed in "Individual Burial Descriptions."

TABLE 20.—Attrition of permanent maxillary molars, scored using the 10-stage system of Scott (Buikstra and Ubelaker, 1994:53) and recorded as maxillary molar score by quadrant. (*n*=number of teeth scored.)

Age group	M ¹											
	Mesiolingual cusp			Mesiobuccal cusp			Distobuccal cusp			Distolingual cusp		
	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range
0-19.9	27	2	1-5	27	2	1-5	27	2	1-5	27	1	1-5
20-34.9	46	3	1-6	46	5	1-6	46	5	1-5	46	3	1-5
35-49.9	23	5	2-8	20	5	3-9	22	5	2-9	23	5	2-8
50+	2	5	5	1	3	3	2	3	3	2	3, 5	3-5
Age group	M ²											
	Mesiolingual cusp			Mesiobuccal cusp			Distobuccal cusp			Distolingual cusp		
	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range
0-19.9	20	1	1-4	20	1	1-3	20	1	1-4	20	1	1-4
20-34.9	49	3	1-5	49	3	1-4	49	2	1-4	49	3	1-5
35-49.9	27	3, 5	2-8	27	2, 4	2-6	27	4	1-5	28	4	1-8
50+	6	3, 6, 8	3-8	5	2	2-7	6	4, 5	3-8	6	4, 6	4-6
Age group	M ³											
	Mesiolingual cusp			Mesiobuccal cusp			Distobuccal cusp			Distolingual cusp		
	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range
0-19.9	6	1	1-3	6	1	1-2	6	1	1-2	6	1	1-3
20-34.9	44	1	1-5	45	1	1-5	45	1	1-5	45	1	1-5
35-49.9	27	1, 2, 3, 4	1-7	28	1	1-7	28	1	1-7	28	4	1-7
50+	5	3	3-8	5	4	2-5	5	4	3-8	5	3	3-9

TABLE 21.—Attrition of permanent mandibular molars, scored using the 10-stage system of Scott (Buikstra and Ubelaker, 1994:53), and recorded as mandibular molar score by quadrant. (*n*=number of teeth scored.)

Age group	M ₁											
	Mesiolingual cusp			Mesiobuccal cusp			Distobuccal cusp			Distolingual cusp		
	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range
0-19.9	24	1	1-4	24	2	1-5	25	3	1-4	25	1	1-4
20-34.9	31	3	1-5	31	5	2-6	32	5	2-6	32	5	1-6
35-49.9	13	5	2-7	13	5	3-8	14	5	3-8	13	5	2-7
50+	2	7, 10	7-10	2	7, 10	7-10	2	5, 7	5-7	3	5	5-7
Age group	M ₂											
	Mesiolingual cusp			Mesiobuccal cusp			Distobuccal cusp			Distolingual cusp		
	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range
0-19.9	19	1	1-2	19	1	1-3	19	1	1-3	19	1	1-2
20-34.9	46	2	1-5	46	3	1-6	44	3	1-6	45	3	1-6
35-49.9	20	3	2-9	21	3, 4	2-8	19	3	2-8	19	4	2-9
50+	5	5	4-7	5	5	5-8	5	4, 5, 6, 7, 8	4-8	5	5	5-9
Age group	M ₃											
	Mesiolingual cusp			Mesiobuccal cusp			Distobuccal cusp			Distolingual cusp		
	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range	<i>n</i>	Mode	Range
0-19.9	5	1	1-2	5	1	1-2	5	1	1-2	5	1	1-2
20-34.9	36	1	1-5	36	1	1-5	35	1	1-4	35	1	1-4
35-49.9	15	2	1-6	15	3, 4	1-5	14	3, 4	1-6	14	2	1-6
50+	5	2, 3, 5, 6, 8	2-8	5	3, 6	3-8	5	3	3-8	5	2, 3, 4, 5, 8	2-8

Of 1836 observations of permanent teeth, 335 (18.2%) are hypoplastic. As shown in Table 22, these hypoplastic teeth are relatively evenly distributed between maxillary and mandibular teeth but are more common in males (17.1%) than in females (12.0%). The frequency among subadult individuals is especially high (24.2%). Table 22 also presents the distribution of hypoplasia frequencies for each tooth. The highest frequency of hypoplasia occurred in the maxillary right canine (34.8%), mandibular right canine (34.9%), and mandibular left canine (32.8%).

When possible, observations were recorded on the locations of the hypoplastic defects on the teeth. Measurements were recorded for the distances between the defects and the cementum-enamel junction or alternatively, in teeth with little or no occlusal wear, between the defect and the occlusal surface. This measurement allowed the estimation of the stage of crown formation at the time of formation of the defect. From this, the age of the individual at the time of defect formation could be calculated using standards of Moorrees et al. (1963a, 1963b) and others.

Once the number and age of formation of enamel defects on various teeth within a single dentition were calculated, they were compared to estimate the number of stress episodes and the likely age of the individual at the time of the episode. Multiple defects at different developmental stages of the same tooth were interpreted as individual, separate stress episodes.

In comparing defects and ages of formation on different teeth within the same dentition, variation in the timing of tooth formation was recognized. Accordingly, a two-year range among teeth was used to describe a single episode. Thus, if the ages of formation for defects on multiple teeth were within a range of two years, they were all considered to have originated from one stress episode. If one or more of the estimated formation times of the defects exceeded the two-year range within a single dentition, then multiple episodes were considered. These episodes were then classified into one-year interval categories. Whenever an episode spanned two years, the earlier year was chosen for the purpose of consistency.

Formation times of defects were estimated for the permanent teeth of 69 individuals and the deciduous teeth of 14 individuals. Of the permanent dentition, 27 individuals presented evidence for one disease episode, 32 individuals for two episodes, eight individuals for three episodes, and two individuals for four episodes. The distribution and age at formation of these 123 episodes recorded in the permanent dentition are as follows: nine between birth and 1 year, 12 between 1 and 2 years, 25 between 2 and 3 years, 43 between 3 and 4 years, 13 between 4 and 5 years, nine between 5 and 6 years, two between 6 and 7 years, three between 10 and 11 years, five between 11 and 12 years, and two between 12 and 13 years.

The distribution and age at formation of the 14 episodes recorded in the deciduous dentition are four between 7 months in utero and 0.3 years and 10 between 0.3 and 1 year. Each of the 14 individuals represented by deciduous dentition presented only one stress episode.

Some of the individuals contributing to the statistics presented above had both permanent and deciduous teeth. Accordingly, the ages of these individuals at the time of the stress episodes were compared for the deciduous teeth and the permanent dentition. This showed that two episodes suggested by the deciduous dentition could have been produced by the same two stress episodes suggested by the permanent dentition. If these episodes are interpreted as being two events rather than four, a total of 135 stress episodes is suggested by the combined permanent and deciduous dentition.

The distribution and age of formation of these 135 stress episodes are as follows: three neonatal, 18 between birth and 1 year, 12 between 1 and 2 years, 25 between 2 and 3 years, 43 between 3 and 4 years, 13 between 4 and 5 years, nine between 5 and 6 years, two between 6 and 7 years, three between 10 and 11 years, five between 11 and 12 years, and two between 12 and 13 years.

The data presented above are evidence that stress episodes were concentrated in infants and young children, especially those between the ages of 2 and 4 years. Nutritional problems and disease likely contributed to these statistics.

TABLE 22.—Frequencies of dental hypoplasia in permanent teeth (hypoplastic teeth/observations). “?”=sex indeterminate.

Sex	Right maxilla								Left maxilla								Total	%
	M ³	M ²	M ¹	PM ²	PM ¹	C	I ²	I ¹	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	M ³		
Female	1/16	3/20	2/19	0/13	2/20	5/22	3/17	3/17	3/21	1/11	4/18	1/19	1/18	1/19	2/19	1/16	33/285	11.6
Male	0/25	1/24	1/21	1/19	2/24	5/19	3/18	7/23	6/23	3/20	6/21	2/19	2/21	3/15	2/20	2/21	46/333	13.8
?	1/4	4/17	15/39	1/18	2/19	14/28	4/18	11/31	13/33	4/22	9/22	2/19	0/17	11/34	2/16	0/4	93/341	27.3
Total	2/45	8/61	18/79	2/50	6/63	24/69	10/53	21/71	22/77	8/53	19/61	5/57	3/56	15/68	6/55	3/41	172/959	17.9
Sex	Right mandible								Left mandible								Total	%
	M ₃	M ₂	M ₁	PM ₂	PM ₁	C	I ₂	I ₁	I ₁	I ₂	C	PM ₁	PM ₂	M ₁	M ₂	M ₃		
Female	0/4	1/12	0/10	0/8	0/17	6/20	4/20	4/22	3/18	3/19	4/18	1/17	0/16	0/13	2/12	1/5	29/231	12.5
Male	1/16	0/22	3/15	1/21	2/19	7/19	7/20	6/20	9/22	9/22	11/23	3/24	1/24	1/16	2/19	3/20	66/322	20.5
?	0/7	2/19	11/37	1/12	2/17	9/24	5/24	7/29	5/27	5/22	5/20	3/16	1/12	10/35	2/18	0/5	68/324	21
Total	1/27	3/53	14/62	2/41	4/53	22/63	16/64	17/71	17/67	17/63	20/61	7/57	2/52	11/64	6/49	4/30	163/877	18.6

In the New York Monroe County sample, Lanphear (1990) also found that stress episodes in subadults peaked between the ages of 2 and 4 years, and in the same study presented comparative data from the literature suggesting the peak age of episodes ranges from 1 year to 6 years in different samples.

DENTAL RESTORATIONS

In spite of the extensive dental disease discussed above, evidence of dentistry was detected in only two individuals. The 17- to 22-year-old female of burial 590 displayed three maxillary teeth with gold-foil fillings on the interproximal surfaces. Six other teeth displayed carious lesions with no evidence of restorations.

The 35- to 45-year-old female of burial 731 displayed seven teeth with carious lesions. One of these, the left mandibular first molar, had been filled with a restoration made of tin (see discussion for burial 731).

Some perspective on these restorations and concepts of dentistry at the time is provided by Harris' *Principles and Practice of Dental Surgery*, published in Philadelphia in 1858. In the section discussing various approaches to dental restoration, Harris (1858:290) noted that gold foil is the material of choice for filling teeth. When prepared properly, Harris argued, gold foil "may be pressed into all the inequalities of the cavity, and rendered so firm and solid as to be impermeable to the fluids of the mouth." He stressed the importance of using properly prepared gold foil and cited a Mr. Charles Abby of Philadelphia as a primary supplier of such high-quality materials.

The Harris book is much less enthusiastic about the use of tin for fillings. Admitting that the material is sometimes successful in preventing additional carious destruction at the site, he argued that in many cases the filling fails, allowing additional decay. He noted,

If the fluids of the mouth are vitiated, it soon oxydizes (sic) and turns black, and then, instead of preventing, it rather promotes a recurrence of the disease. This, with the author, has constituted an insuperable objection to its use. As an excuse for its employment, however, many operators say, that in consequence of its greater malleability than gold, it can oftentimes be employed [sic] for filling a badly-shaped and large cavity when the last named article cannot be used. We do not, however, regard this as a valid objection. Any tooth that can be filled with tin, can be equally well filled with gold. Others again employ it, because many of their patients are not able to pay for a more costly material. Now, if a tooth is worth filling at all, it is worth filling in a proper manner, and with a suitable material, and it would be more creditable to the operator to divide the expense with his poor patient, than to use an article that may never benefit him." (Harris, 1858:293)

Thus, although Harris might argue that the adult female of burial 731 receiving the tin filling is likely poorer and perhaps victimized by the dentist, both she and the young woman of burial 590 with the gold fillings were better off than the rest of the Voegtly sample who show no evidence of having received dental treatment at all.

Non-Metric Traits

Frequencies of non-metric traits are presented in Tables 23 and 24. A key to expression of traits is given in Appendix 2.

Discussion and Conclusions

Considerable data are provided by church records for Voegtly Cemetery, which document the high mortality of the period between 1833 and 1861 and even provide information on the professions, causes of death, and other information about the decedents. As valuable as this is, it does not include data on individual health conditions, dental disease, living stature, and other such individual biological information. Such information can only be gleaned from examination of the remains of the people themselves. The careful excavation and analysis of the remains from Voegtly Cemetery offered such an opportunity.

Study of the remains not only revealed much detail about the biology of the Voegtly population, it also contributed to our knowledge of postmortem change in human remains. This study documented the highly variable but generally extensive weathering and decay that occurred in more than 100 years of interment. The extent of weathering was especially severe among subadult individuals, with remains of many infants apparently lost entirely to the elements. Such is expected, given the friable nature of immature bones, but the data presented here contribute useful comparative detail on postmortem change in this sample of known antiquity.

Many of the skeletons retained irregular black deposits on their surfaces. Analysis revealed this substance to be manganese, a probable marker of the soil context of the burials.

Sixty-six individuals also showed evidence of a characteristic green coloration on their remains, likely indicating long-term contact with copper. The burial records reveal the likely source to be artifacts made of copper buried with the decedents.

Nine adult males presented dental alterations produced by extreme pipewear. Although these were not sufficiently extreme to produce alveolar abscesses, as in some other published samples, they nevertheless document this custom. The teeth of one of these individuals also displayed a tailor's notch, suggesting an occupation in which pins or similar objects are habitually placed between the teeth.

Individuals in the Voegtly sample were relatively tall. The average height was 160.2 cm (5 ft 3 in) for females and 170 cm (5 ft 7 in) for males. These values are comparatively high for that time and likely reflect the Swiss-German ancestry of the decedents.

Study of the remains revealed diverse pathological conditions, in spite of the relatively poor preservation of many individuals. Twelve individuals showed evidence of bone fracture, four with associated infection involving the bone. Eleven others presented evidence of abnormal periosteal bone formation, likely representing infection. Extreme arthritic change was found in 13 individuals, concentrated especially in the shoul-

der, elbow, and spine. Although the historical records indicate tuberculosis was not only present but a major cause of death, the skeletal evidence is suggestive but is not conclusive for this disease (see following section, "Evaluation of Evidence for Tuberculosis").

The population represented by the Voegtly sample suffered extensive dental disease. Carious lesions (cavities) were found in 31.3% of all deciduous teeth examined and in 28.5% of permanent teeth. Alveolar abscesses are present in 4.9% of observations for this condition. Many teeth were lost during the lives of the individuals as a result of these disease conditions.

Of all the permanent teeth examined, 18.2% displayed areas of irregular formation (hypoplasias) suggestive of disruption of normal growth during the subadult years. The stress episodes producing these areas clustered between the ages of 2 and 4. They likely suggest growth problems caused by disease and/or poor nutrition at those times.

In spite of the abundant evidence of dental disease, only two individuals showed any evidence of dentistry. One young woman received gold-foil fillings, representing the best and most expensive treatment available, yet this woman had other untreated carious lesions in her dentition. The other woman

TABLE 23.—Frequencies of non-metric traits. "—"=not applicable. See Appendix 2 for key to expression of traits.

Trait	Females				Males			
	0	1	2	3	0	1	2	3
Apical bone	10	5	—	—	15	5	—	—
Bregmatic bone	13	0	—	—	21	1	—	—
Flexure of superior sagittal sulcus	—	2	2	1	—	6	10	0
Inca bone	15	0	—	—	26	0	—	—
Metopic suture	23	3	5	—	36	1	2	—
Sagittal ossicle	12	1	—	—	9	3	—	—

TABLE 24.—Frequencies of non-metric traits. "—"=not applicable. See Appendix 2 for key to expression of traits.

Trait	Females												Males															
	Left						Right						Left						Right									
	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6
Accessory transverse foramina	0	0	1	—	—	—	—	0	0	0	—	—	—	—	6	0	2	—	—	—	—	7	1	—	—	—	—	—
Asterionic bone	3	2	—	—	—	—	—	10	4	—	—	—	—	—	3	1	—	—	—	—	—	6	7	—	—	—	—	—
Auditory exostosis	40	0	—	—	—	—	—	35	0	—	—	—	—	—	52	1	—	—	—	—	—	52	1	—	—	—	—	—
Condylar canal	7	13	—	—	—	—	—	4	14	—	—	—	—	—	8	14	—	—	—	—	—	15	13	—	—	—	—	—
Coronal ossicle	7	2	—	—	—	—	—	7	2	—	—	—	—	—	15	4	—	—	—	—	—	16	4	—	—	—	—	—
Divided hypoglossal canal	12	5	0	0	4	—	—	12	3	1	2	5	—	—	24	8	4	0	3	—	—	30	5	1	4	5	—	—
Epipteric bone	3	0	—	—	—	—	—	5	0	—	—	—	—	—	11	0	—	—	—	—	—	9	0	—	—	—	—	—
Foramen ovale incomplete	16	2	—	—	—	—	—	16	1	—	—	—	—	—	28	2	—	—	—	—	—	30	0	—	—	—	—	—
Foramen spinosum incomplete	12	2	—	—	—	—	—	10	3	—	—	—	—	—	22	3	—	—	—	—	—	26	2	—	—	—	—	—
Infraorbital suture	2	2	1	—	—	—	—	4	2	1	—	—	—	—	4	0	4	—	—	—	—	4	0	3	—	—	—	—
Lambdaoid ossicle	6	5	—	—	—	—	—	5	5	—	—	—	—	—	11	10	—	—	—	—	—	8	14	—	—	—	—	—
Lateral atlas bridging	0	0	—	—	—	—	—	0	0	—	—	—	—	—	9	0	—	—	—	—	—	10	0	—	—	—	—	—
Mandibular torus	26	1	1	—	—	—	—	26	1	1	—	—	—	—	33	7	4	—	—	—	—	31	6	4	—	—	—	—
Mastoid foramen location	0	10	3	1	0	0	—	1	4	1	0	1	0	—	2	13	2	2	6	0	—	0	14	1	3	8	0	—
Mastoid foramen number	0	9	4	1	—	—	—	1	3	3	0	—	—	—	2	9	10	3	—	—	—	0	14	9	4	—	—	—
Mental foramen	0	21	1	—	—	—	—	1	24	0	—	—	—	—	0	37	1	—	—	—	—	0	31	0	—	—	—	—
Multiple infraorbital foramina	6	2	0	0	—	—	—	6	0	0	1	—	—	—	11	2	0	0	—	—	—	9	0	0	0	—	—	—
Mylohyoid bridge degree	21	0	1	—	—	—	—	21	2	0	—	—	—	—	32	2	3	—	—	—	—	35	3	1	—	—	—	—
Mylohyoid bridge location	21	0	1	—	—	—	—	21	2	0	—	—	—	—	32	2	3	—	—	—	—	35	3	1	—	—	—	—
Occipital-mastoid suture ossicle	7	0	—	—	—	—	—	5	0	—	—	—	—	—	13	1	—	—	—	—	—	11	3	—	—	—	—	—
Parietal foramen	11	6	0	—	—	—	—	8	9	0	—	—	—	—	14	13	2	—	—	—	—	13	14	1	—	—	—	—
Parietal notch bone	5	1	—	—	—	—	—	5	1	—	—	—	—	—	9	1	—	—	—	—	—	9	0	—	—	—	—	—
Posterior atlas bridging	0	0	—	—	—	—	—	7	2	—	—	—	—	—	0	0	—	—	—	—	—	7	3	—	—	—	—	—
Pterygo-alar bridge	3	7	1	0	—	—	—	5	4	1	0	—	—	—	12	7	0	2	—	—	—	12	8	3	1	—	—	—
Pterygo-spinous bridge	6	3	0	0	—	—	—	5	2	1	0	—	—	—	9	6	2	1	—	—	—	12	7	2	0	—	—	—
Septal aperture	7	0	2	—	—	—	—	6	0	2	—	—	—	—	20	0	—	—	—	—	—	20	0	—	—	—	—	—
Supraorbital foramen	16	2	0	—	—	—	—	14	2	0	—	—	—	—	15	7	1	—	—	—	—	11	8	1	—	—	—	—
Supraorbital notch	3	15	1	—	—	—	—	2	13	2	—	—	—	—	7	13	2	—	—	—	—	8	10	2	—	—	—	—
Tympanic dehiscence	30	7	1	—	—	—	—	24	8	0	—	—	—	—	47	3	0	—	—	—	—	46	4	0	—	—	—	—
Zygomatico-facial foramina	1	5	1	2	0	2	2	4	2	2	1	0	2	0	2	1	5	2	2	1	0	1	8	2	0	0	2	0

with evidence of dentistry presented a filling made of tin. This represented a cheaper treatment and also one thought at the time not to be particularly effective.

Although disease conditions provide a detailed look at the problems of life in Pittsburgh in the mid-nineteenth century, the view is somewhat incomplete. Because of the variable preservation, many other pathological conditions may have once been present on the remains but were erased or disguised by the weathering process. Although many of the conditions, especially the dental ones, were active at the time of death, others represent past problems in the lives of the individuals represented, problems that they survived. Many of the disease conditions that were especially problematic, or even lethal at that time, leave no recognizable marks on the bones and teeth.

Careful analysis of the age at death of each individual skeleton allows calculation of mortality statistics that can be com-

pared with those available from the cemetery records. Both the archeological/skeletal and archival approaches to this problem suggest comparatively high mortality and low life expectancy for the Voegtly population. Although the burial records suggest four individuals lived past age 85, the data suggest a life expectancy at birth under 15 years with very high infant mortality. The archival records further suggest that mortality was especially high during the summer months. The mortality values, especially infant mortality, are among the highest recorded for historic North American samples.

The information presented here supplements the historical record and adds depth to our knowledge of the lives of these early residents of the Pittsburgh community. The harsh statistics on dental disease, mortality, and other aspects of their pathological conditions document many of the difficulties that were part of their life experience.

Evaluation of Evidence for Tuberculosis

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As noted by Rothman (1994), consumption, or tuberculosis, caused one out of every five deaths in the first half of the nineteenth century in the United States, affecting all geographic areas and socioeconomic classes and both urban and rural populations. Young individuals were affected more commonly than older ones, and females more often than males.

Tuberculosis was among the many diseases causing health problems in nineteenth century Pennsylvania. Of the 151 records associated with Voegtly church listing causes of death, 10 specifically listed consumption, and one referred to trachea tuberculosis. "Trachea tuberculosis" may refer to disease caused by *Mycobacterium bovis*, a type of tuberculosis derived from drinking milk or eating the flesh of infected animals, usually cattle. This leads to oropharyngeal penetration and infection of the cervical nodes in that area (Aufderheide and Rodríguez-Martín, 1998:118), and it must have been a noticeable condition. Although the organ involvement of *M. bovis* has a different pattern from that of *M. tuberculosis*, if it reaches the lung, it may cause the same types of lesions as *M. tuberculosis*. In general, the term "consumption" is generally associated with the disease tuberculosis (both *M. tuberculosis* and *M. bovis*).

Evidence for tuberculosis in archeologically recovered human remains can be detected in mummified soft tissue (Aufderheide and Rodríguez-Martín, 1998), but it is usually found in the skeleton, due to preservation factors. In modern times, only about 1% of individuals with tuberculosis present skeletal involvement; however, the number might be higher if rib lesions are considered. Rib lesions might result from mani-

festations of the disease in the lungs or pleura. Other skeletal expressions of the disease result from the hematogenous spread of tubercle bacilli. In such cases, the bacilli travel through circulating blood to areas of the skeleton with cancellous bone and hematopoietic marrow. Once at these sites, the distribution of bacilli leads to sequestra formation, with focal destruction, cavitation, and minimal reactive-bone formation.

Although the skeletal manifestations of tuberculosis can vary considerably, they can present some predictable characteristics. The lesions are usually found in areas of greater blood content, such as the long bone metaphyses, vertebral centra, and the spongy bone of the ilia. As noted by Aufderheide and Rodríguez-Martín (1998), in adults, lesions most commonly occur in the joints (90%), whereas the spinal column is involved in about 40% of lesions. Other areas of frequent involvement are the pelvis, long bone diaphyses, sternum, and aspects of the cranium.

Skeletal manifestations of tuberculosis typically involve circular areas of lytic destruction with associated cavitation. Minimal perifocal reactive-bone formation may be present, and osteoporosis may also be involved. Some osteosclerosis involving the surrounding trabeculae is usually present as well. Lesions typically are smooth-walled, with some associated periosteal reactive bone.

Vertebral involvement is usually concentrated in the centra in the lower spine, from the eighth thoracic to the fourth lumbar. Bone destruction can lead to vertebral collapse when the bone cannot support the weight of the individual, producing angular kyphosis, also referred to as Pott's disease or gibbus. Aufderheide and Rodríguez-Martín (1998) considered this condition to be an important diagnostic attribute of skeletal tuberculosis.

Many other pathological conditions can present skeletal changes similar to those produced by tuberculosis. Such diseases include chronic pyogenic osteomyelitis, brucella osteomyelitis, fungal infections such as blastomycosis or coccidioidomycosis, typhoid spine, healed vertebrae fractures, actinomycosis, echinococcosis, histoplasmosis, histocytosis-X, sarcoidosis, septic arthritis, traumatic arthritis, malignant bone tumors, rheumatoid arthritis, Paget's disease, ankylosing spondylitis, and Scheuermann's disease (Aufderheide and Rod-

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ríquez-Martín, 1998). Detection of evidence for tuberculosis in the Voegtly Cemetery sample was hampered by the variable preservation of the remains. Pott's disease, involving structural alterations and collapse of the lower thoracic and upper lumbar vertebrae, would have been especially difficult to detect. Vertebrae in general are poorly preserved in most of the remains. Those altered by Pott's disease were particularly vulnerable to destructive taphonomic processes.

Direct possible skeletal evidence for tuberculosis was recovered in only four individuals, one 8- to 9-year-old female, one adult female, and two adult males. The 40- to 60-year-old female of burial 629 was found with three apparently ossified soft-tissue nodules in the neck area. A sample of this material was analyzed using scanning electron microscopy at the Armed Forces Institute of Pathology by William C. Rodriguez III and Erich P. Junger. Their examination of the white matrix of a specimen revealed high concentrations of calcium, iron, potassium, phosphate, silicon, aluminum, and oxygen. This analysis and morphological examination suggested the presence of brushite, a mineral commonly associated with human remains from archeological contexts. They were not able to detect the presence of whitlockite, a mineral associated with tuberculous lesions (Baud and Kramar, 1988). Even though the location in the neck area of the skeleton and general appearance of the nodules suggested they might represent partially calcified lymph nodes, analysis was not diagnostic.

The 50- to 85-year-old male from burial 32 displayed a circular defect on the centrum of the third cervical vertebra of possible tubercular origin. This individual also suffered from extreme arthritic change elsewhere in the skeleton, thus complicating diagnosis.

The 35- to 45-year-old male from burial 706 and the 8- to 9-year-old female from burial 617 both displayed new abnormal bone formation on the visceral surfaces of ribs. Involved are two left ribs in burial 706 and one right rib in burial 617. Such lesions can be produced by tuberculosis but are not entirely diagnostic.

In recent years the diagnosis of tuberculosis has been enhanced significantly by the development of molecular techniques. Since 1993, through use of the polymerase chain reaction (PCR), DNA from the *M. tuberculosis* complex has been identified from numerous archaeological samples (Spigelman and Lemma, 1993; Salo et al., 1994). Accordingly, samples with the evidence for possible tuberculosis from burials 32, 629, and 706 were submitted for analysis. As controls, specimens were also submitted from burials 40 (a 3-month-old infant), 54 (a 55- to 75-year-old male), and 118 (a 35- to 40-year-old male), individuals who presented no skeletal evidence of the disease.

All of the samples were prepared in the manner reported earlier by Donoghue et al. (1998). The samples were decalcified with proteinase K/EDTA for up to 7 days at 56°C to ensure sufficient time for breakdown. Samples were then treated with lysis buffer L6 (Boom et al., 1990) based on guanidium thiocyan-

ate, and any DNA was captured onto silica suspension. The silica was washed well with Boom's washing buffer L2 (Boom et al., 1990), 70% ethanol, then acetone, and dried at 60°C. The silica supernatant was also processed by treatment with a protein precipitation solution and precipitating any DNA with isopropanol. Any DNA precipitated from the isopropanol was washed with 70% ethanol, and tubes were also dried at 60°C. DNA was rehydrated (supernatants) or eluted off silica (in two stages) by incubation at 60°C in water for one hour.

A two-tube nested PCR was carried out on both the silica eluates and supernatant using primers for a 123 base pair (bp) IS6110 sequence and inner primers for a 92 bp sequence, which are specific for the *M. tuberculosis* complex. All were negative. This process was repeated on two different series of extracts.

This method of extraction (minus the decalcification) was used by another laboratory to confirm the results. Analysis was performed on two separate extractions in this lab, targeting the IS6110 sequence, and both produced negative results.

In addition, DNA was extracted using a Qiagen DNA extraction kit plus a Qiagen hot-start PCR using the 123 bp IS6110 primers as above. This procedure also produced negative results.

Following these negative results for the IS6110 sequence, a PCR designed to target the ribosomal protein S12 was carried out. The primers used for the ribosomal protein S12 (Finken et al., 1993) amplify all mycobacteria and therefore are not specific to *M. tuberculosis*, but by sequencing the PCR product and comparing it with the different species of *Mycobacterium*, its identification can be made. This procedure used primers from the ribosomal protein S12 (Finken et al., 1993; Cole et al., 1998) to amplify a 204 bp DNA fragment: forward 5'-ATC-GAGTGCTCCTGCAGGTTG-3' (position 32-5) and reverse 5'-ATCGAGTGCTCCTGCAGGTTG-3' (position 215-236).

From this experiment, burials 32 and 706 both produced positive results, confirming the presence of the *M. tuberculosis* complex, and burial 629 produced a negative result, indicating that the lymph node had no detectable mycobacterial DNA present. Another positive result was obtained in burial 40 (the infant), one of the skeletons that did not have tuberculous lesions present. This is not surprising, because of the age-at-death factor. The infant of burial 40 may not have lived long enough to develop skeletal evidence of tuberculosis, even if the infant suffered from the disease.

Another attempt to recover DNA from the apparent lymph node of burial 629 succeeded using a primer extension preamplification method (PEP). This procedure recovered mycobacterial DNA from the samples that had previously yielded positive results as well as from the apparent lymph node sample from burial 629. The detection was accomplished using PCR of the IS6110 region using the INS-1 and INS-2 primers.

Although the morphology of the lesions suggestive of tuberculosis is not entirely diagnostic and the specific PCR failed to detect *M. tuberculosis*, the presence of the *M. tuberculosis* complex was demonstrated by sequencing. It confirms that tu-

berculosis was present in the population represented by the skeletons.

One possible interpretation of the archival records is that the documented tuberculosis was caused by *M. bovis*, which creates human disease through the consumption of infected milk or meat. Both the nested IS6110 and the S12 PCR procedures used in this study detect all members of the *M. tuberculosis* complex, including *M. bovis*. Although *M. bovis* has only a single copy of the insertion sequence IS6110 on which the nested PCR is based—*M. tuberculosis* normally has multiple copies, which facilitates its detection—nested PCR is so exquisitely sensitive it should be possible to detect the presence of *M. bovis*, if one has a well-preserved sample. This, however, is generally not the case at Voegtly. The S12-specific PCR, which targets part of the single-copy ribosomal RNA gene, again indicates only that the species that caused tuberculosis in these individuals could have been *M. tuberculosis* or *M. bovis*, but it does not differentiate between them. Cases have been reported in samples from medieval Europe of *M. tuberculosis* strains present without the IS6110 sequence (Taylor et al., 2000), so it is possible that these samples from the Voegtly Cemetery in Pennsylvania represent the

earliest example of IS6110-negative *M. tuberculosis* strains from the United States. This small study illustrates the necessity of confirming data in independent laboratories and the advisability of using more than one target sequence in molecular studies.

The discussion above documents the complexity of interpreting molecular evidence for tuberculosis from archeologically recovered human remains. Although archival evidence suggested the presence of tuberculosis in the population, the possible skeletal evidence of the disease suggested by gross skeletal morphology was detected in only a few individuals. This evidence is suggestive but is not entirely diagnostic for the disease. Such findings were not surprising, given that a relatively low percentage of individuals with the disease present skeletal alterations and the poor preservation of many skeletons in the sample might have further obscured the evidence.

N.B.—Since this work was done there is now more evidence of *M. tuberculosis* rather than *M. bovis* being detected in archeological samples; in fact, spoligotyping and a specific PCR for *M. bovis* devised by Taylor et al. (2001) have shown that *M. bovis* has not yet been detected in archeological material (Helen Donoghue, pers. comm., 11 Jul 2002).

Individual Burial Descriptions

Douglas H. Ubelaker and Erica B. Jones

See "Data Collection Protocol" for information regarding procedures and the coding system used. A summary of sex, age at death, and other relevant information for each burial number is available in Appendix 3. Information from field notes is indicated by "FN." Enamel defects are listed by the tooth involved and are followed in parentheses by the distance of the lesion from the cementum-enamel junction (CEJ) unless this information is not available (n/a). Depressions for Schmorl's nodes are referred to herein as Schmorl's depressions.

Remains from Burial Contexts

BURIAL 1.—No cultural information was available.

The incomplete remains of three adult individuals are present, one relatively young. No reliable estimate of age or sex could be made.

Teeth present, in occlusion, from the maxillae are the left third molar, right second molar, right first molar, one premolar, one canine, and two incisors, and from the mandible the second molars, first molars, one right premolar, and one canine.

BURIAL 2.—FN: In association with the human remains were remnants of a wooden coffin, a portion of finely woven cloth along the thoracic area of the vertebrae, and one white glass button east of the vertebral column.

The incomplete remains are of a middle-aged female. Bones present are the frontal (1), both parietals (1), occipital (1), left (1) and right (2) temporals, both malars (1), mandible (2), left clavicle (2), sacrum (3), left (3) and right (2) ilia, right ischium (2), both acetabula (2) of the pelvis, left (2) and right (3) patellae, one lumbar centrum, three lumbar arches, left and right humeri (1) minus the proximal third of the left diaphysis, proximal epiphyses and proximal thirds of both radii (2), proximal epiphyses (1) and proximal thirds (2) of both ulnae, both femora (1), both tibiae (1) minus the distal right epiphysis, distal third and distal epiphysis of the right fibula (1), both calcanei (2), both tali (2), and left cuboid (1).

No teeth are present.

Preservation of the remains corresponds to weathering stage 4. Apparent iron staining is on the right malar.

The extent of cranial suture closure suggests an age at death of 40 to 50 years. Although the temporals display relatively large mastoid processes, a very wide sciatic notch on the pelvis suggests female sex.

Maximum femur length is 43.1 cm, suggesting a living stature of about 160.6 cm (5 ft 3.3 in).

BURIAL 3.—FN: Isolated remains were found commingled with burial 4.

The incomplete remains are of an adult male. Bones present are both parietals (3); occipital (3); right maxilla (3); mandible (2); right scapula (3); left ilium (3); left ischium (3); left patella (2); first two cervical vertebrae and one other cervical vertebra; rib fragments; middle (3) and distal (1) thirds and distal epiphysis (1) of the left humerus; proximal epiphysis of the right humerus (2); middle (2) and distal (1) thirds and distal epiphysis (2) of the right radius; proximal epiphysis of the right ulna (2); proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the left femur; right femur (1); and one right second metatarsal. Also present is a right proximal femoral epiphysis (1) from a second individual.

Permanent teeth present, in occlusion, are one maxillary central incisor and one root from an unidentified tooth.

Preservation of the remains corresponds to weathering stage 4. Iron staining is on the occipital.

Tooth loss and the extent of osteophytosis suggest an age at death of 30 to 45 years. The general robusticity of the remains suggests male sex.

No skeletal pathology was noted, although the bone is very eroded, with considerable loss of periosteal bone.

BURIAL 4a.—FN: Isolated remains were found with burial 3.

The partial skeleton is of an adult female. Bones present are the frontal (2); both parietals (2); both temporals (1); mandible (2); second cervical vertebra; proximal third of the right humerus (3); proximal (1), middle (1), and distal (2) thirds of the right ulna; distal third of the left femur (3); proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left tibia; proximal epiphysis (1) and proximal (2), middle (1), and distal (1) thirds of the right tibia; and one middle foot phalanx.

Permanent teeth present, in occlusion, are the maxillary right central incisor, and from the mandible the left third molars, left second molars, first molars, premolars, right canine, and incisors. The left mandibular canine was lost postmortem.

These very fragmentary remains correspond with weathering stage 4.

The extent of cranial suture closure and dental wear suggest an age at death of 35 to 50 years. The relatively small mastoid processes, relatively gracile occipital morphology, and other indicators suggest probable female sex.

No skeletal pathology was noted.

BURIAL 4b.—The incomplete remains of an adult female. Bones present are the mandible (2); proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the left tibia; and proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds of the right tibia.

No teeth are present. The mandibular central incisors and left molars were lost antemortem.

The remains correspond to weathering stage 4.

Tooth loss and the extent of alveolar remodeling suggest an age at death of more than 45 years. Mandibular morphology suggests female sex.

No pathological conditions were noted.

BURIAL 5.—FN: This burial was disturbed during the initial archaeological testing of the site. A wood coffin outline was in association with the human remains.

Only cranial bones (3), the frontal, occipital, and temporals, of a very small infant, likely a newborn, are present.

Preservation of the remains corresponds to weathering stage 5. The remains show evidence of plant-root damage and of warping due to ground pressure.

BURIAL 6.—FN: This articulated individual was found with an associated coffin outline.

The incomplete remains are of an infant or young child. Bones present are the frontal (2), occipital (2), both temporals (2), both maxillae (2), both palatines (2), and mandible (3).

Deciduous teeth present, in occlusion, from the maxillae are the molars, right canine, and left central incisor, and from the mandible the left molars, right first molar, canines, left lateral incisor, and central incisors.

Permanent teeth present, not in occlusion, from the maxillae are the first molars, canines, lateral incisors, and left central incisor and from the mandible the first molars and left lateral incisor.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation of these very fragmentary remains suggests an age at death of about 2.8 years.

BURIAL 7.—FN: A grave outline, one straight pin, and cloth remnants, possibly cotton, were present. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 8.—FN: A coffin outline and nails were associated with the human remains.

The incomplete remains are of an infant. Bones present are the occipital (3); left temporal (3); first cervical vertebra; and proximal (2), middle (1), and distal (2) thirds of the right femur.

Deciduous teeth present, in occlusion, from the maxillae are the second molars, right canine, and incisors, and from the mandible the second molars and left first molar.

Permanent teeth present, not in occlusion, are the maxillary first molars, maxillary left canine, maxillary central incisors, and mandibular first molars.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental development of these very fragmentary remains suggests an age at death of 1.5 to 1.8 years.

BURIAL 9.—FN: Nails, a coffin outline, and four clasps, probably copper, were in association with the burial. One clasp was in the right innominate region, one in the left innominate region, one in proximity to the cranium, and one in the chest region.

The incomplete remains are of an infant, likely a newborn. Bones present are the right frontal (3), temporal (3), and ilium (1). The tympanic ring is not united to the temporal.

No teeth are present.

Green staining is on the ilium. The remains show evidence of plant-root damage and of warping due to ground pressure.

BURIAL 10.—FN: A coffin outline and nails were associated with the human remains. Wood and unidentified metal were also within the burial.

The partial remains are of an infant. Bones present are the frontal (1); parietals (1); occipital (2); temporals (2); mandible (2); right scapular body (1) and glenoid fossa (2); left pubis (2); 10 thoracic vertebrae; first ribs; seven other left and one other right ribs; middle third of a humerus (3); proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of both ulnae; proximal (2), middle (1), and distal (2) thirds of both femora; proximal (2), middle (1), and distal (2) thirds of the left tibia; proximal (1), middle (1), and distal (2) thirds of the right tibia; and proximal (2), middle (1), and distal (2) thirds of both fibulae.

Deciduous teeth in occlusion are the molars, left incisors, maxillary right incisors, and mandibular canines. Deciduous teeth not in occlusion are the maxillary canines.

Permanent teeth present, not in occlusion, are the first molars, right lateral incisors, central incisors, maxillary left canine, mandibular right canine, and mandibular left lateral incisor.

Preservation of the remains corresponds to weathering stage 3. Red staining is on the occipital.

The extent of dental formation suggests an age at death of 1.3 to 1.8 years.

BURIAL 11.—FN: A coffin outline and nails were associated with this burial. No wood was present.

The partial remains are of an infant. Bones present are the frontal (2), occipital (2), both temporals (2), one zygomatic (2), mandible (2), sacrum (3), one first cervical vertebra, seven thoracic vertebrae, and one left rib.

Deciduous teeth present, not in occlusion, are three forming molar fragments, maxillary canines, and maxillary left incisors.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of newborn to 2 months.

BURIAL 12.—FN: A coffin outline with areas of the sides still intact was present. A layer of wood covered the top of the human remains; some wood fragments appeared painted.

Human remains are the frontal bone (3) and both temporals (2) of a newborn infant.

Deciduous teeth present, not in occlusion, are the maxillary right first molar and mandibular left molars.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests a fetal age at death of about 8 lunar months.

BURIAL 13.—FN: A coffin outline was associated with this burial, but no wood was present.

Several bones of a child are present: the frontal (3), both parietals (3), occipital (2), both temporals (2), and mandible (2).

Deciduous teeth present, fully developed and in occlusion, are the second molars, right canines, maxillary right first molar, and mandibular first molars.

Permanent teeth present, not in occlusion, are the first molars, maxillary right lateral incisor, maxillary left central incisors, mandibular canines, and mandibular left lateral incisor.

In the deciduous dentition, carious lesions are on the occlusal surface of the maxillary right first molar (two lesions) and the mandibular first molars (Figure 22). Observations were not possible on the maxillary right canine, maxillary left molars, or mandibular right canine.

The extent of dental formation suggests an age at death of about 2 to 3 years.

BURIAL 14.—FN: A coffin outline, nails, and apparent wood fragments were in association with the human remains.

Remains are the petrous portion of a temporal bone (3) of an infant. All deciduous teeth are present, not in occlusion, except the maxillary right canine.

One permanent mandibular incisor, crown one-half formed, is present.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental development suggests an age at death of 6 to 9 months.

BURIAL 15.—FN: Wood, nails, and leg bones were found, but no human remains were submitted for analysis. Excavation information (size, orientation, and type of remains) suggested to the archeologists that an amputated limb was represented.



FIGURE 22.—Carious lesions of deciduous teeth, burial 13.

BURIAL 16.—FN: A coffin outline, fragments of wood, and nails were associated with the burial. A medallion (found around the neck), probably copper, and a straight pin were also recovered.

All the deciduous teeth, except the right maxillary molars and left mandibular canine, of an infant are present but are not fully formed. The extent of dental formation suggests an age at death of 6 to 9 months.

BURIAL 17.—FN: Wood fragments were the only artifacts recovered.

No bones are present.

BURIAL 18.—FN: No associated artifacts were indicated.

The partial remains are of an adult male. Bones present are the frontal (1); both parietals (2); occipital (1); left (1) and right (2) temporals; left and right maxillae (3); mandible (1); sacrum (2); both ilia (2); left (3) and right (1) ischia; right pubis (2); first and second cervical vertebrae; three other cervical vertebrae; two thoracic vertebrae; three lumbar vertebrae; proximal (1), middle (1), and distal (1) thirds and distal epiphysis (2) of the left humerus; proximal epiphysis (1) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the right humerus; proximal (2), middle (1), and distal (1) thirds of the left radius; middle (1) and distal (2) thirds and distal epiphysis (1) of the right radius; proximal epiphysis and proximal (2) and middle (2) thirds of the left ulna; proximal epiphysis and proximal (1), middle (1), and distal (1) thirds of the right ulna; proximal epiphysis (1), proximal third (2), and remainder (1) of the left femur; right femur (1); left tibia (1); proximal epiphysis and proximal (1), middle (1), and distal (1) thirds and distal epiphysis (2) of the right tibia; and middle (1) and distal (1) thirds and distal epiphysis (1) of the left fibula; right first (2), second (1), third (2), fourth (1), and fifth metacarpals (1); three proximal and two middle right phalanges; left (1) and right (2) calcanei; both tali (1); both cuboids (1); left first cuneiform (1); both second cuneiforms (1); right navicular (1); left second metatarsal (1); left (1) and right (2) third metatarsals; right fourth metatarsal (1); and both fifth metatarsals (1). Also present are ossified thyroid tissue and a complete hyoid (greater horns not united) (Figure 23).

Permanent teeth present, in occlusion, are the maxillary right second premolar (damaged), mandibular left second molar, and mandibular left canine. Lost antemortem from the maxillae were the right molars, left second premolar, and left first molar, and from the mandible the left first and third molars, right molars, left second premolar, right premolars, right canine, and left incisors.

A cervical carious lesion is in the left mandibular second molar. Alveolar abscesses are in the buccal or labial alveolar channels associated with the maxillary right first and third molars. A semicircular wear facet is on the mesial surface of the mandibular left canine. This alteration may represent pipewear. Dark brown staining is on the mandibular left second molar.

Preservation of the remains corresponds to weathering stage 3.

The extent of osteophytosis on the vertebral centra (Figure 24), loss of teeth, and extent of cranial suture closure suggest an age at death of 45 to 60 years. A relatively narrow sciatic notch of the pelvis and large femoral head diameters suggests male sex.



FIGURE 23.—Unfused portions of hyoid and ossified thyroid tissue, burial 18.

Maximum femur length is 46.4 cm, suggesting a living stature of about 171.8 cm (5 ft 7.7 in).

BURIAL 19.—FN: A coffin outline with some intact wood was associated with this burial. The hook portion of a hook-and-eye fastener was present (Figure 25); nails were also recovered.

The incomplete remains are of a newborn infant. Bones present are the frontal (3), both temporals (2), first cervical vertebra, three thoracic vertebrae, and one metacarpal.

Deciduous teeth present are the left lateral incisors, not in occlusion.

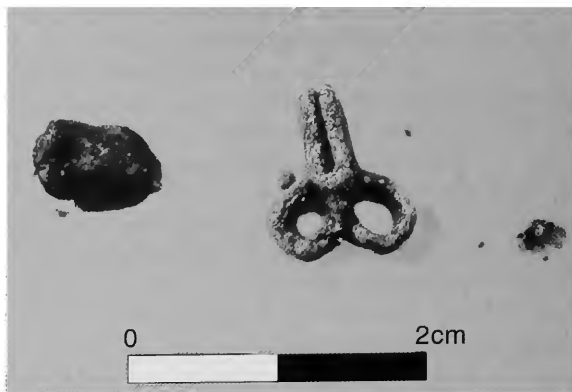


FIGURE 25.—Hook and eye fastener, burial 19.

Preservation corresponds to weathering stage 4. Some green staining, possibly from copper, is on a vertebral centrum. The extent of dental formation suggests the age at death.

BURIAL 20.—FN: A coffin outline with some intact wood, nails, and two or three straight pins, probably copper, were associated with this burial.

The partial cranium, mandible, and teeth are of a newborn. Bones present are the frontal (2), both temporals (2), and mandible (3).

Deciduous maxillary teeth present, not in occlusion, are the right second molar, right lateral incisor, and left central incisor.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation indicates the age at death.

BURIAL 21.—FN: A faint coffin outline was present. Associated artifacts recovered were nails and wood fragments.

The incomplete cranium and teeth are of a young infant. Bones present are the frontal (3) and right temporal (2). Deciduous teeth, not in occlusion, from the maxillae are the right second molar, first molars, left canine, and right lateral incisor, and from the mandible the molars and left canine. Permanent teeth, not in occlusion, are the maxillary first molars.

Preservation of the remains corresponds to weathering stage 4.



FIGURE 24.—Osteophytosis on vertebral centra, burial 18.

The extent of dental formation suggests an age at death of 3 to 8 months.

BURIAL 22.—FN: No associated artifacts were indicated.

The partial remains are of an adult male. Bones present are the frontal (1); left (1) and right (2) parietals; occipital (1); left (2) and right (3) temporals; left zygomatic (2); mandible (2); left scapula (3); left (3) and right (2) ilia; right ischium (2); distal third of the left humerus (3); proximal epiphysis (2) and remainder (1) of the right humerus; middle third (3) of the left radius; proximal epiphysis (1) and proximal (2), middle (1), and distal (3) thirds of the right radius; proximal (1), middle (2), and distal (3) thirds of the left ulna; proximal epiphysis (1) and proximal (1), middle (1), and distal (3) thirds of the right ulna; both femora (1); proximal epiphysis of the left tibia (2) and all other aspects of both tibiae (1); proximal epiphysis (2) and diaphysis (1) of the left fibula; proximal (3), middle (1), and distal (1) thirds and distal epiphysis (1) of the right fibula; one metacarpal; both calcanei; both tali; and right second and third metatarsals.

Permanent maxillary teeth present, in occlusion, are the right third molar, left first premolar, central incisors, and right lateral incisor. Evidence of cervical caries is on the premolar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on aspects of the cranium, left femur, mandible, right humerus, and left arm bones.

Cranial suture closure, dental wear, and other indicators suggest an age at death of 45 to 50 years. Cranial morphology suggests male sex.

Evidence of an old healed fracture is on the distal diaphyses of the right tibia and fibula. The fracture is about 35 mm from the distal end of the fibula and 40 mm from the distal end of the tibia, with slight posterior and lateral displacement of the distal fragments. The tibia and fibula are fused together at the fracture site with extensive remodeling (Figure 26). The external remodeled surfaces are relatively smooth, with minimal perforation. Fusion is complete on the anterior surface; union is incomplete on the posterior surface.

Small oval-shaped porous facets measuring about 6×10 mm are on the distal tibia articular surface, near the anterior margin. Corresponding porous facets are on the talus, on the tibial articular surface.

BURIAL 23.—FN: Nails were the only artifacts associated with the human remains. Considerable blond or light brown hair was around the cranium.

The relatively complete skeleton is of an adult female. Bones present are the mostly complete cranium (1) (Figure 27); mandible (2); left (3) and right (3) scapulae; right ilium (3); first and second cervical vertebrae; four other cervical vertebrae; one thoracic vertebra; one left first rib; two other ribs; proximal and distal epiphyses (2) and remainder of the left humerus (2); distal epiphysis (2) and remainder (1) of the right humerus; proximal (3), middle (2), and distal (3) thirds of the left radius; diaphysis (2) of the right radius; proximal (3), middle (2), and distal (3) thirds of the left ulna; proximal epiphysis (1), proximal (1), middle (2), and distal (2) thirds and distal epiphysis (2) of the right ulna; proximal (1) and middle (1) thirds of the left femur; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the right femur; left tibia (1); proximal epiphysis (3) and proximal (2) and middle (1) thirds of the right tibia; middle (3) and distal (1) thirds and distal epiphysis (1) of the left fibula; left calcaneus; left cuboid; and left first and fifth metatarsals.



FIGURE 26.—Fusion of right tibia and fibula, burial 22.

All permanent teeth are present, in occlusion, except the right mandibular second premolar, with no associated alveolar bone. The mandibular right third molar is damaged.

Linear horizontal enamel defects are on the following maxillary teeth: left (1.7 mm) and right (1.9 mm) third molars and left (brown; 1.9 mm) and right (brown; 2.5 mm) second molars.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the mandible and postcranial skeleton.

The extent of dental formation suggests an age at death of 22 to 25 years. The apices of the maxillary third molar roots are not closed. Cranial morphology suggests female sex.

BURIAL 24.—FN: A straight pin, possibly copper, was recovered in the thoracic region with an associated fragment of cloth.

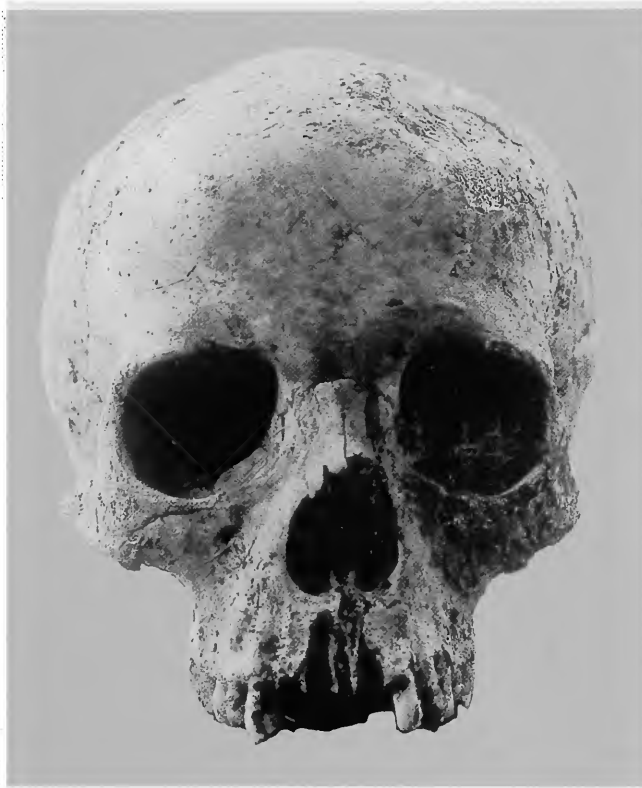


FIGURE 27.—Cranium from burial 23.

Nails and wood fragments were also associated with the human remains.

A few bone fragments of newborn size and morphology are present: the occipital (2), both temporals (3), and two cervical vertebrae.

No teeth are present.

Preservation of the remains corresponds to weathering stage 4.

BURIAL 25.—FN: Nails and wood were the only artifacts found in association with this burial.

A few bone fragments of newborn size and morphology are present. The only recognizable bone is a temporal (3).

No teeth are present.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 26.—FN: A coffin outline was the only artifact associated with the human remains.

The incomplete remains are of an adult female. Bones present are the frontal (3); parietals (3); occipital (3); left (3) and right (2) temporals; left (2) and right (1) maxillae; left (2) and right (1) palatines; mandible (3); proximal (2), middle (1), and distal (1) thirds and distal epiphyses (1) of both humeri; proximal epiphysis (2) and proximal (1), middle (2), and distal (2) thirds of the left radius; diaphysis (3) of the right radius; proximal (1), middle (1), and distal (2) thirds of the left ulna; proximal (1) and middle (2) thirds of the right ulna; proximal (2), middle (1), and distal (2) thirds of the left femur; proximal (1), middle (1), and distal (2) thirds of the right femur; proximal (2), middle (1), and distal

(2) thirds of both tibiae; middle third (2) of one fibula; both calcanei; both tali; left and right first cuneiforms; and seven metatarsals.

All maxillary teeth are present, in occlusion, except for the left molars (missing, with no associated alveolar bone). The right third molar, left premolars, left canine, left lateral incisor, and right central incisor are damaged. Mandibular teeth present are the left first two molars, left first premolar (damaged), right premolars, left incisors, and right incisors.

A large carious lesion with an associated buccal abscess is on the maxillary right third molar. An occlusal carious lesion is on the right maxillary first molar.

A brown, hypocalcified, discrete-boundary defect is on the mandibular left second molar (~2.4 mm). It likely formed at about the age of 11 years.

Preservation of the remains corresponds to weathering stage 5. Black staining is on many of the long bones and teeth.

The extent of dental attrition and arthritic change suggests an age at death of 25 to 35 years. Cranial morphology suggests female sex.

BURIAL 27.—FN: Nails were the only associated artifacts recovered.

The incomplete remains are of an adult male. Bones present are both parietals (3); occipital (2); left (2) and right (1) temporals; left (3) and right (2) maxillae; mandible (2); one scapula fragment (3); left ilium (3); right ischium (1); second cervical vertebra; four other cervical vertebrae; four thoracic vertebrae; one lumbar vertebra; one first rib; nine other ribs; middle third (3) of the left humerus; middle third (2) of the right ulna; proximal epiphyses (2) and proximal (2), middle (1), and distal (1) thirds and distal epiphyses (1) of both femora; both tibiae (1); proximal (2), middle (1), and distal (2) thirds of the left fibula; proximal (2), middle (2), and distal (2) thirds and distal epiphysis (1) of the right fibula; both calcanei; right talus; right third cuneiform; right foot navicular; and four left and one right metatarsals.

Permanent teeth present, in occlusion, from the maxillae are the second molars, first molars, right premolars, right canine, and right lateral incisor, and from the mandible all teeth except the right first molar. The maxillary third molars were lost antemortem.

A carious lesion is on the occlusal surface of the maxillary right first molar.

Preservation of the remains corresponds to weathering stage 5. Black staining is on most of the remains.

The extent of arthritic change, closure of cranial sutures, and dental attrition suggests an age at death of 22 to 32 years. The narrow sciatic notch of the pelvis suggests male sex.

Maximum femur length is 42.7 cm, suggesting a living stature of about 163.0 cm (5 ft 4.2 in).

BURIAL 28.—FN: A coffin outline was associated with this burial, which had been disturbed in the northern portion by a sewer trench. No other associated artifacts were found.

The incomplete post-cranial skeleton is of an adult male. Bones present are the left (3) and right (2) ilia; right patella (1); one lumbar vertebra; proximal (1), middle (1), and distal (1)

thirds and distal epiphysis (2) of the left femur; right femur (1); proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds of the left tibia; distal epiphysis (2) and remainder (1) of the right tibia; left fibula (1); both calcanei (1); both tali (1); right foot navicular (1); and right second metatarsal (1).

No teeth are present.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the long bones, especially of the left side.

The amount of arthritic change and dental attrition suggest an age at death of 45 to 70 years. The large femoral head diameters (48 mm), narrow sciatic notches of the ilia, and general bone robusticity suggest male sex.

Maximum femur length is 42.6 cm, suggesting a living stature of about 159.3 cm (5 ft 2.8 in).

BURIAL 29.—FN: A coffin outline and nails were associated with this burial. A trench disturbed the burial in the northern half, bisecting the human remains above the innominate region.

The incomplete remains are of an adult male. Bones present are both ilia; right patella; left femur (1); proximal epiphysis (2) and remainder (1) of the right femur; both tibiae (1); proximal third (3) and remainder (1) of the left fibula; middle third of the right fibula (1); both calcanei; left talus; left and right cuboids; left third cuneiform; both foot naviculars; left and right first metatarsals; and left second, third, fourth, and fifth metatarsals.

No teeth are present.

Preservation of the remains corresponds to weathering stage 4.

General bone morphology suggests an age at death of 45 to 70 years. General bone robusticity and a femoral head diameter of about 46 mm suggest male sex.

BURIAL 30.—FN: No artifacts were recovered.

The incomplete skeleton is of adult male. Bones present are the frontal (2); left (1) and right (3) parietals; occipital (1); both temporals (1); left zygomatic (1); both maxillae (1); both palatines (1); mandible (2); both ilia (2); first, second, and four other cervical vertebrae; three thoracic vertebrae; four lumbar vertebrae; proximal epiphysis (3) and diaphysis (2) of the left humerus; proximal epiphysis (3) of the right humerus; diaphyses (2) of the radii and ulnae; proximal epiphysis (1) and proximal (1), middle (2), and distal (1) thirds and distal epiphysis (3) of the left femur; proximal epiphysis (2) and proximal (2), middle (2), and distal (1) thirds of the right femur; proximal (3), middle (1), and distal (3) thirds of the left tibia; proximal (3), middle (2), and distal (3) thirds of the right tibia; and some ossified thyroid cartilage.

Permanent teeth present, in occlusion, from the maxillae are the second molars, first premolars, left canine, left central incisor, and right incisors, and from the mandible the left first molar (damaged), right second molar, left premolars, right second premolar, right first premolar (damaged), left canine, and incisors. One additional molar root with the crown destroyed by caries is present (possibly the right mandibular first molar).

Permanent teeth lost antemortem from the maxillae were the third molars, first molars, second premolars, and right canine, and from the mandible the right third molar, left second molar, and right first molar.

Carious lesions are on the interproximal surface of the maxillary left canine; cervical areas of the maxillary left first premolar and mandibular left first and second premolars; and large surfaces of the maxillary left second molar, mandibular right first molar, mandibular right first premolar and mandibular left first molar. An alveolar abscess in the buccal or labial alveolar channel is associated with the mandibular left first molar. Extensive calculus deposits are on the lingual surfaces of the mandibular teeth.

Linear horizontal enamel defects are on the maxillary right incisors and maxillary left central incisor.

Preservation of the remains corresponds to weathering stage 5.

The extent of cranial suture closure and arthritic change suggest an age at death of 45 to 55 years. Large supraorbital ridges on the frontal bone, a femoral head diameter of 47 mm, and general bone robusticity suggest male sex.

The mandibular condyles are bifurcated.

BURIAL 31.—FN: A sewer trench disturbed the human remains above the femoral region. No associated artifacts were recovered.

The incomplete remains are of an adult. Bones present are the left ilium (2); both patellae (1); another left patella; proximal epiphysis (2) and diaphysis (1) of the left femur; middle (3) and distal (1) thirds of the right femur; proximal epiphysis (1) and middle (1) and distal (1) thirds of the left tibia; middle (1) and distal (1) thirds of the right tibia; proximal (2), middle (2), and distal (2) thirds of the left fibula; proximal (2), middle (1), and distal (2) thirds of the right fibula; both calcanei; both tali; left third cuneiform; and left third and fourth metatarsals.

No teeth are present.

Preservation of the remains corresponds to weathering stage 4.

Slight arthritic ridging on the distal femoral articular surface suggests an age at death of 40 to 80 years. No estimate of sex can be made.

BURIAL 32.—FN: Nails and a pin found in the region of the right clavicle were associated with this burial.

The incomplete skeleton is of an adult male. Bones present are the frontal (1); both parietals (1); occipital (1); both temporals (1); both maxillae (2); left (1) and right (3) palatines; mandible (1); left (3) and right (2) clavicles; right scapula (3); right ilium (2); right ischium (2); all cervical vertebrae; 11 thoracic vertebrae; one right first rib; three left and four right other ribs; proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left humerus; proximal epiphysis (3) and remainder (1) of the right humerus; proximal epiphysis (1) and proximal third (2) of the left ulna; proximal epiphysis (1) and proximal (1) and middle (1) thirds of the right ulna; proximal epiphysis (3) and remainder (1) of the left femur; right femur (1); proximal epiphyses (2) and remainders (1) of both tibiae; proximal third (2) and remainder (1) of the left fibula; and middle (2) and distal (1) thirds and distal epiphysis (1) of the right fibula.

Permanent teeth present, in occlusion, from the maxillae are the first premolars and left lateral incisor, and from the mandible the premolars, left canine, left incisors, and right central incisor (damaged). Teeth lost antemortem from the maxillae were the left

third molars, left second molars, first molars, and second premolars, and from the mandible the molars and right central incisor.

An occlusal carious lesion is on the maxillary right first premolar.

An extremely large calculus deposit is on the mandibular left second premolar (Figure 28).

Enamel defects consist of linear horizontal pits on the left maxillary lateral incisor (two defects, 5.9 mm, 8.0 mm), which would have formed at about the ages of 1.5 and 3 years, and linear horizontal grooves on the mandibular left central incisor (4.7 mm), mandibular left lateral incisor (6.0 mm), and mandibular left canine (6.8 mm), which likely formed at about the age of 1.5 years.

Preservation of the remains corresponds to weathering stage 3. Green staining, likely resulting from contact with copper, is on the fourth and fifth thoracic vertebrae and distal left tibia.

The extent of arthritic change in the skeleton suggests an age at death of 50 to 85 years. Large mastoid processes on the temporals, a femoral head diameter of about 49 mm, and general bone robusticity suggest male sex.

Maximum femur length is 46.2 cm, suggesting a living stature of about 171.4 cm (5 ft 7.4 in).

The relatively large cranium shows a metopic suture and a very prominent external occipital protuberance.

Extreme arthritic change is evident on the first two cervical vertebrae (Figures 29, 30) with eburnation and spicule formation. Other vertebrae show extensive osteophytosis and porous centra. A circular defect about 3 mm in diameter is on the superior centrum surface of the third cervical vertebra. The sixth and seventh cervical vertebrae are fused through bone formation on the right side of the centra. Small (3 mm) pitting is also on the inferior surfaces of the centra of the sixth and seventh thoracic vertebrae.

The medial surface of the proximal third of the right fourth metatarsal is perforated (Figure 31). This lesion is about 4 mm in diameter and appears to be well remodeled.



FIGURE 28.—Extremely large calculus deposit, burial 32.

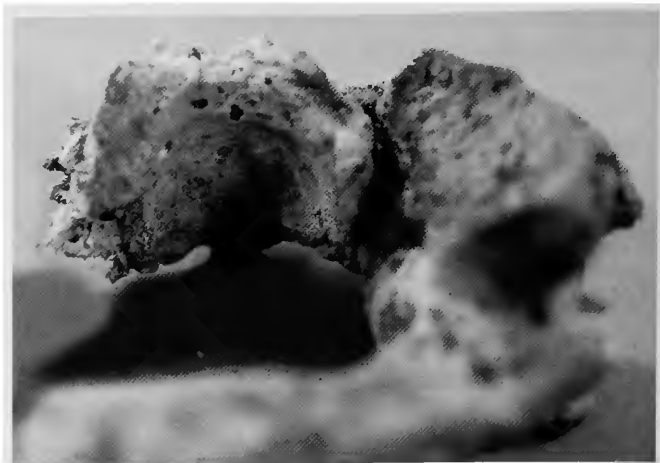


FIGURE 29.—Arthritic condition on first cervical vertebra, burial 32.

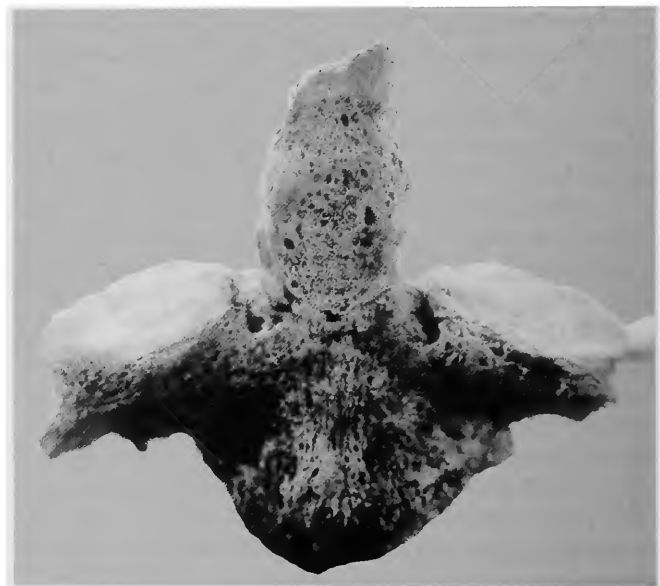


FIGURE 30.—Arthritic condition on second cervical vertebra, burial 32.

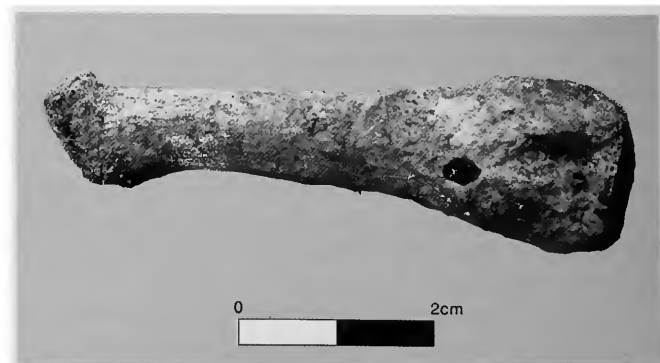


FIGURE 31.—Healed lesion on right fourth metatarsal, burial 32.

BURIAL 33.—FN: No associated artifacts were recovered.

The incomplete skeleton is of an adult, probably male. Bones present are the frontal (2); left (1) and right (2) parietals; occipital (2); left (3) and right (1) temporals; both maxillae (2); both palatines (2); mandible (1); right clavicle (2); left scapula (3); left ilium (3); right patella (1); fragments of cervical vertebrae; middle (3) and distal (1) thirds and distal epiphysis (2) of the left humerus; proximal epiphysis (3) and proximal (1), middle (2), and distal (1) thirds and distal epiphysis (3) of the right humerus; proximal epiphysis (1) and proximal third (2) of the left radius; proximal (2) and middle (2) thirds of the left ulna; proximal epiphysis (1), distal epiphysis (3), and remainder (1) of the left femur; proximal (1), middle (1), and distal (2) thirds of the right femur; proximal (2), middle (1), and distal (1) thirds of both tibiae; proximal (2), middle (1), and distal (2) thirds of the left fibula; proximal (3), middle (1), and distal (3) thirds of the right fibula; both calcanei (1); both tali (1); and one first metatarsal (2).

All permanent teeth are present, in occlusion, except the maxillary right incisors.

An enamel defect of a linear horizontal groove is in the mandibular right canine (~3.5 mm). It likely formed at about the age of 5 years.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental development, dental attrition, and cranial suture closure suggest an age at death of 35 to 40 years. Bone robusticity and a femoral head diameter of 50 mm suggest male sex, although the mastoid processes are relatively small.

BURIAL 34.—FN: A coffin outline was associated with this burial. No artifacts were recovered.

The incomplete remains are of an adult male. Bones present are a cranium (1) (Figures 32, 33); mandible (1); both clavicles (1); both scapulae (3); both ilia (2); both ischia (3); left (3) and right (2) pubes; both patellae (1); first and second cervical vertebrae; five thoracic vertebrae; right first rib; two left and two right other ribs; both humeri (1); distal epiphysis (2) and remainder (1) of the left radius; right radius (1); both ulnae (1); both femora (1); proximal epiphysis (1) and proximal (2), middle (1), and distal (1) thirds of the left tibia; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (1) of the right tibia; diaphysis of the right fibula (1); right hand navicular; left lunate; right triquetral; right lesser multangular; left capitate; left hamate; left second and third metacarpals; right fifth metacarpal; right calcaneus; and right talus.

Permanent teeth present, in occlusion, from the maxillae are the second molars, left second premolar, right premolars, and

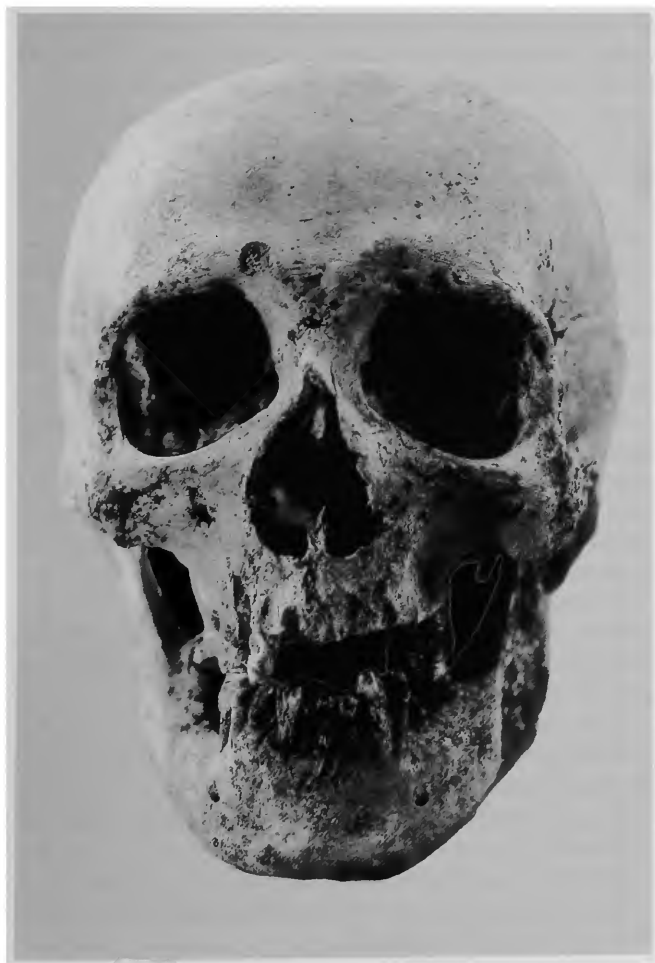


FIGURE 32.—Frontal view of skull, burial 34.



FIGURE 33.—Superior view of skull, burial 34.

right lateral incisor, and from the mandible the third molars, left second molar, left first premolar, right premolars, canines, and incisors.

Permanent teeth lost antemortem from the maxillae were the third molars, first molars, left first premolar, left canine, left lateral incisor, and central incisors, and from the mandible the right second molar, first molars, and left second premolar.

Interproximal carious lesions are on the mandibular left second molar and mandibular right first and second premolars. An alveolar abscess is associated with the maxillary right second molar.

Preservation of the remains corresponds to weathering stage 4. Green staining, perhaps from contact with copper, is on the lateral midshaft surface of the left ulna. Black staining is also present.

The extent of dental wear, loss of teeth, and cranial suture closure suggest an age at death of 35 to 45 years. General bone robusticity suggests male sex.

Maximum femur length is 46.5 cm, suggesting a living stature of about 172.1 cm (5 ft 7.8 in).

This very robust individual displays significant pathological alterations. Arthritic changes include extensive new bone formation (lipping) on the left humeral head. New bone formation with marginal lipping is also present within the glenoid fossa of the left scapula and the articular surface of the distal left radius. Four thoracic vertebrae display sharpening of their centra borders but no defined osteophytosis.

Old healed Colles fractures, with substantial remodeling, are on the distal diaphyses of the left radius and ulna.

BURIAL 35.—FN: A coffin outline with wood fragments was associated with this burial. The coffin edge was ornamented with a cloth strip and copper braid. The braid is similar in pattern to rickrack trimming used in modern sewing. Other artifacts recovered were plain and ornamental nails, buttons, a beaded bracelet, and the leather soles and uppers of a child's shoes. The ornamental nails varied in size, with the smallest ones discovered at the corners and foot of the coffin.

An incompletely formed permanent mandibular left first molar is the only human remain present. The complete formation of its crown suggests an age at death of about 2 years.

BURIAL 36.—FN: Wood covered the entire coffin bottom. Wooden coffin sides were also in various areas, with decorations of a cherub's head and wings still visible. Fabric might have covered the entire exterior of the coffin. More fabric was recovered from the perimeter of the coffin, which, when intact, probably came in contact with the coffin lid. This perimeter fabric had trim, possibly copper, similar to that recovered in burial 35. Other associated artifacts were a decorative cord and button.

Only the teeth of an infant and an adult left ilium (2) are present.

Deciduous teeth present, not in occlusion, are the molars, left canines, left maxillary lateral incisor, and right mandibular lateral incisor. The stages of formation of the teeth suggest an age at death of about 7 to 10 months.

Preservation of the remains corresponds to weathering stage 4.

BURIAL 37.—FN: Nails, nuts, and nut caps were in association with the human remains. An unidentified rusted mass was found near the northern end of the burial and wood fragments were discovered in the southern end. The rusted mass may be a metal nameplate (Beynon, 1989:8). The size of the coffin suggests the burial was of an infant.

No human remains were recovered.

BURIAL 38.—FN: A coffin outline, nails, and a decorated nail were in association with this burial. An animal appears to have disturbed the northern end of the burial. The size of the coffin suggests the burial was of an infant or small child.

No bones were recovered.

BURIAL 39.—FN: Fragments of coffin wood and oxidized iron nails were in association with this burial.

Only a few unrecognizable fragments of bone are present.

BURIAL 40.—FN: A coffin outline was in association with this burial. No artifacts were recovered.

The incomplete remains are of an infant. Bones present are the frontal (2); both parietals (2); occipital (2); both temporals (1); both maxillae (2); both palatines (3); mandible (1); both scapulae (2); 15 vertebrae; left and right first ribs; right second rib; eight left and eight right other ribs; proximal (2), middle (1), and distal (2) thirds of the left humerus; proximal (1) and middle (2) thirds of the right humerus; proximal (2), middle (1), and distal (2) thirds of the left radius; diaphysis (1) of the right radius; proximal (1), middle (1), and distal (2) thirds of the left ulna; diaphysis (1) of the right ulna; diaphysis (1) of the left femur; proximal (1), middle (1), and distal (2) thirds of the right femur; proximal (2), middle (1), and distal (1) thirds of the left tibia; and proximal (1), middle (1), and distal (2) thirds of the right tibia.

Deciduous teeth present, not in occlusion, from the maxillae are the right second molar and right central incisor, and from the mandible the second molars, left canine, and right lateral incisor.

The extent of dental formation suggests an age at death of about 0 to 6 months.

A small amount of rust-like material is on the vertebral centra and right temporal bone.

BURIAL 41.—FN: Coffin wood, iron nails, and an iron handle were in association with this burial. A fire-reddened sandstone rock was also present. The size of the coffin outline suggests the burial was of a small child.

No human remains were recovered.

BURIAL 42.—FN: A coffin outline was associated with this burial. No other artifacts were present. The size of the coffin suggests the burial was of an infant.

No human remains were recovered.

BURIAL 43.—FN: Nails were recovered from this burial. No other artifacts were present.

The occipital (3) and both temporals (2) of a newborn or fetus are present. No teeth are present.

Preservation of the remains corresponds to weathering stage 4. The size and morphology of the bones suggest a fetal age at death of about 8.5 lunar months.

BURIAL 44.—No artifacts were present.

No human remains were recovered.

BURIAL 45.—FN: A coffin outline; coffin lid, showing evidence of paint; and nails were associated with this burial.

The frontal (2) and left (2) and right (3) temporals of an infant are present.

Deciduous teeth present, not in occlusion, are the maxillary second molars, maxillary left canine, mandibular left molars, and mandibular left canine.

Preservation of the remains corresponds to weathering stage 4.

The extent of tooth formation suggests an age at death of 6 to 10 months.

BURIAL 46.—FN: A coffin outline and nails were associated with this burial.

The incomplete remains are of a child. Bones present are the occipital (3) and both temporals (2).

Deciduous teeth present, in occlusion, are the right molars, left second molars, left canines, maxillary right canine, maxillary left central incisor, mandibular left incisors, and mandibular right lateral incisor.

Permanent teeth present, incompletely formed, are the maxillary first molars and incisors and the mandibular first molars, canines, and lateral incisors.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the cranium fragments. The extent of dental formation suggests an age at death of 2 to 3 years.

BURIAL 47.—FN: A coffin outline was associated with this burial. An earring was recovered near the right side of the cranium.

The incomplete remains are of a child. Bones present are the frontal (2); left parietal (2); occipital (2); both temporals (2); both maxillae (2); both palatines (1); mandible (1); sacrum (1); both scapulae (3); left (3) and right (2) ilia; both ischia (3); both patellae (1); second cervical vertebra; five other cervical vertebrae; 10 thoracic vertebrae; five lumbar vertebrae; second ribs; seven left and eight right other ribs; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) diaphyseal segments of the left humerus; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the right humerus; middle third (2) of the left radius; proximal epiphysis (2) and proximal (1), middle (2), and distal (3) thirds of the right radius; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds of the left ulna; diaphysis (1) of the right ulna; proximal epiphysis (2) and remainder (1) of both femora; proximal epiphyses (2) and proximal (1), middle (1), and distal (2) thirds of both tibiae; proximal epiphysis and diaphysis (1) of the left fibula; middle third of the right fibula (3); left hand navicular; left lunate; left pisiform; left greater multangular; left lesser multangular; left capitate; one hamate; five metacarpals; six proximal hand phalanges; three middle hand phalanges; 10 distal hand phalanges; both calcanei; right cuboid; one first cuneiform; one second cuneiform; one foot navicular; and five metatarsals.

Deciduous teeth present in occlusion are the maxillary second molars. Those not in occlusion are the third molars and maxillary right first premolar.

All permanent teeth are present, in various stages of formation, except the maxillary left second premolar.

Carious lesions in deciduous teeth are on the interproximal surfaces of the maxillary second molars.

Carious lesions in permanent teeth are on the smooth surfaces of the maxillary right second molar and maxillary incisors (Figure 34), large surfaces of the mandibular first molars, and occlusal surface of the mandibular left second molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the long bones and innominate.

The extent of dental formation suggests an age at death of about 10.5 to 12.5 years. Recovery of the earring suggests female sex.

The sacrum is asymmetrical and deviated to the right (Figure 35).

BURIAL 48.—FN: Three nails, a small apparent copper wire, and a metal hook and eye (clothing type) (Figure 36) were in association with this burial. The hook is about 11.4 × 12.5 mm, with the metal about 1.0 mm thick. The eye is about 12.5 × 11.3 mm, with the metal about 1.2 mm thick.

The incomplete remains are of an adult male. Bones present are the frontal (1); left (2) and right (1) parietal; occipital (1); left (1) and right (2) temporals; left zygomatic (3); both maxillae (1); both palatines (1); mandible (1); sacrum (1); both ilia (2); both ischia (3); first and second cervical vertebrae; four other cervical vertebrae; nine thoracic vertebrae; five lumbar vertebrae; rib fragments; left humerus (1); proximal epiphysis (3), proximal third (2), and remainder (1) of the right humerus; proximal epiphysis (3), proximal third (1), and remainder (2) of the left radius; proximal epiphysis (1), proximal third (1), and remainder



FIGURE 34.—Carious lesions on labial surfaces of maxillary incisors, burial 47.

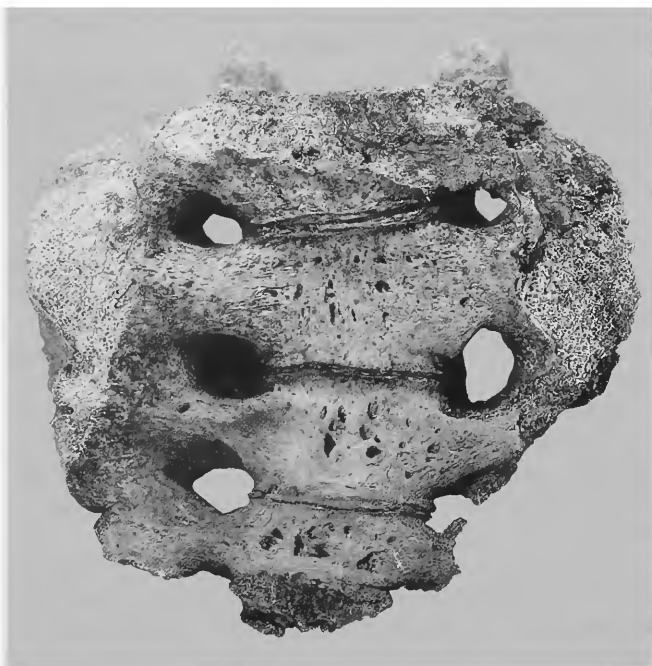


FIGURE 35.—Asymmetrical sacrum, burial 47.

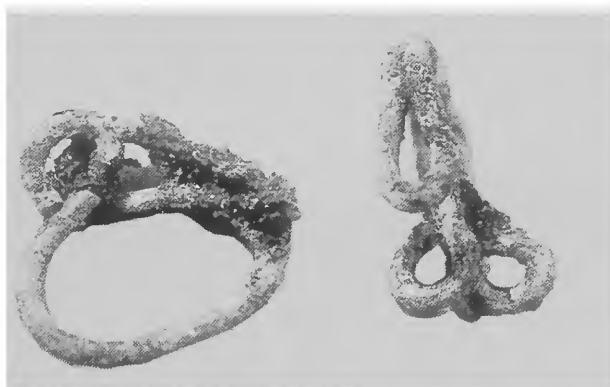


FIGURE 36.—Metal hook and eye, burial 48.

(2) of the right radius; proximal epiphyses (1) and proximal (1), middle (2), and distal (3) thirds of the ulnae; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (1) of the left femur; right femur (1); proximal epiphysis (1) and proximal (2), middle (1), and distal (3) thirds of the left tibia; proximal epiphysis (2) and proximal (2), middle (1), and distal (2) thirds of the right tibia; one hand navicular; right triquetral; right pisiform; right capitate; right hamate; left second metacarpal; both third metacarpals; left fourth metacarpal; and left fifth metacarpal.

Permanent teeth present, in occlusion, are all maxillary teeth except the right second molar, which was lost antemortem (the right canine, central incisors, and right lateral incisor are dam-

aged), and all mandibular teeth (the right canine and right central incisor are damaged).

An interproximal carious lesion is on the left maxillary canine.

One enamel defect, a linear horizontal groove, is on the left maxillary canine (~5.3 mm). The location of this defect indicates it likely formed at about the age of 4 years.

Preservation of the remains corresponds to weathering stage 4. Green staining, perhaps from contact with copper, is on the ventral surfaces of the sacrum and fifth lumbar vertebra and the distal left radius. Black staining is on some long bones and carpal bones.

The extent of cranial suture closure and dental attrition suggest an age at death of 25 to 32 years. Morphology of the pelvis and general skeletal robusticity suggest male sex.

BURIAL 49.—FN: Nails and wood fragments were associated with this burial. A cupric coin covered with fabric was recovered from the pelvic area of the remains.

The incomplete remains are of an adult female. Bones present are the frontal (3); left parietal (2); occipital (2); left temporal (1); mandible (2); left scapula (3); left ilium (2); five cervical vertebrae; proximal epiphysis (2) and proximal (2), middle (3), and distal (3) thirds of the left humerus; diaphysis (2) of the right humerus; proximal (2), middle (1), and distal (2) thirds of the left radius; proximal (2), middle (1), and distal (2) thirds of the left ulna; diaphysis (2) of the right ulna; diaphysis (2) of the left femur; proximal (3), middle (2), and distal (3) thirds of the right femur; diaphysis (2) of the left tibia; proximal (3), middle (2), and distal (2) thirds of the right tibia; middle thirds (3) of both fibulae; and fragments of proximal phalanges.

Permanent teeth present, in occlusion, from the maxillae are the right premolars, left second premolar, left canine, and left lateral incisor, and from the mandible the right first molar, right second premolar, first premolars, canines, and incisors. The mandibular left second premolar was lost antemortem.

Carious lesions are on the root of the maxillary right premolars and the interproximal surface of the maxillary left canine.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the long bones, pelvis, cervical vertebrae, and mandible.

Cranial suture closure, dental formation, dental eruption, dental attrition, and general lack of arthritic change suggest an age at death likely between 20 and 30 years. The generally gracile morphology of the bones suggests female sex.

BURIAL 50.—FN: A coffin outline and nails were associated with the human remains. Wood fragments and an unidentified conglomeration of metal were also present in the burial. The right femur terminated in a "conglomeration" of metal, believed to be a protective cap for an amputation (Beynon, 1989:12).

The very fragmentary and incomplete remains are likely of a adult. Bones present are the occipital (2), left (2) and right (1) temporal, mandible (3), left ischium (3), middle thirds of both femora (3), and middle third of the left tibia (3).

Preservation of the remains corresponds to weathering stage 5.

The general morphology of the bones suggest they represent an adult individual, but their incompleteness and fragmentary na-

ture preclude a more exact age estimate. No reliable estimate of sex can be made, although the mastoid processes of the temporals are relatively small (usually a female indicator).

BURIAL 51.—FN: A coffin outline with intact coffin wood in areas, nails, bolts, a tack, buttons, and a glass bead were found in association with this burial. A possibly copper braid, some of which still adhered to the coffin wood, followed the perimeter of the coffin.

The incomplete remains are of a child. Bones present are the frontal (1); left (3) and right (1) parietals; occipital (2); left (1) and right (2) temporals; left (2) zygomatic; left (1) and right (2) maxillae; left (2) and right (3) palatines; mandible (2); about six rib fragments; proximal epiphysis (2) and diaphysis (3) of the left femur; diaphysis (2) of the right femur; proximal (3), middle (2), and distal thirds and distal epiphysis (2) of the left tibia; proximal (3), middle (1), and distal (2) thirds of the right tibia; and proximal epiphyses (2) of both fibulae.

Deciduous teeth present, in occlusion, are the molars and right mandibular canine.

Permanent teeth present but not in occlusion are the second molars, second premolars, left first premolars, and canines. Those in occlusion are the first molars, central incisors, and mandibular lateral incisors.

Cariou lesions in deciduous teeth are on the interproximal surfaces of the maxillary left first molar and mandibular right canine.

Preservation of the remains corresponds to weathering stage 4 or 5. Green staining, likely indicating contact with copper, is on the interior of the coronal suture area of the right frontal. Black staining is also present. Some apparent desiccated soft tissue is present as well.

The extent of tooth formation suggests an age at death of 6.8 to 8 years.

BURIAL 52.—FN: No associated artifacts were recovered.

The incomplete remains are of an adult, likely female. Bones present are the frontal (3); both parietals (2); occipital (1); both temporals (1); left (2) and right (3) maxillae; both palatines (2); manubrium (2); both ilia (3); proximal (2) and middle thirds (2) of the left humerus; proximal epiphysis (3) and diaphysis (2) of the left radius; diaphysis (2) of the left ulna; proximal epiphysis (1) and proximal (2), middle (1), and distal (3) thirds of the left femur; proximal epiphysis (2) and proximal (2), middle (1), and distal (3) thirds of the right femur; proximal (2) and middle thirds (1) of the left tibia; proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the right tibia; proximal (2) and distal epiphyses (2) of the right fibula; one lunate; one capitate; left third metacarpal; one proximal hand phalanx; one likely middle hand phalanx; and right talus.

Permanent teeth present, in occlusion, from the maxillae are the molars, second premolars, right first premolar, and right incisors, and from the mandible the right second molar.

One carious lesion is on the occlusal surface of the maxillary right first premolar.

One enamel defect is present, a linear horizontal groove on the maxillary right central incisor (~5.1 mm).

Preservation of the remains corresponds to weathering stage 4. Some desiccated soft tissue is also present.

Bone and dental morphology suggest an age at death of 20 to 30 years and female sex.

BURIAL 53.—FN: Portions of coffin wood remained intact around and underneath the human remains. Other associated artifacts were nails, hooks and eyes, and fragments of cloth. A post hole had disturbed this burial near the southwest corner.

The incomplete remains are of an adult female. Bones present are the frontal (2); both parietals (2); occipital (2); both temporals (2); mandible (2); both clavicles (2); both scapulae (3); left (2) and right (3) ilium; both ischia (3); vertebrae fragments; proximal epiphysis (2) and diaphysis (1) of the left humerus; proximal epiphysis (1) and diaphysis (1) of the right humerus; proximal (2), middle (1), and distal (1) thirds of the left radius; diaphysis (2) of the right radius; proximal (3), middle (2), and distal (3) thirds of the left ulna; diaphysis (2) of the right ulna; proximal epiphysis (1) and proximal (1), middle (1), and distal (1) thirds and distal epiphysis (2) of the left femur; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the right femur; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left tibia; diaphysis (2) of the right tibia; middle third (3) of a fibula; one hand navicular; one right greater multangular; one second metacarpal; one fourth metacarpal; one fifth metacarpal; one other metacarpal; seven proximal hand phalanges; five middle hand phalanges; one calcaneus; one foot navicular; and two metatarsals.

Permanent teeth present, in occlusion, from the maxillae are the right molars (the first molar is damaged), left second premolar, and incisors, and from the mandible the left premolars, canines, left lateral incisor, and central incisors. The permanent mandibular molars and mandibular right second premolar were lost antemortem.

A large carious lesion is on the maxillary right first molar; only the roots remain. Dark brown staining is on the maxillary right first and second molars and mandibular left first premolar.

Enamel defects consist of linear horizontal grooves on the crown of the mandibular right canine (two defects, 5.7 mm, 4.9 mm), mandibular right central incisor (~3.9 mm), mandibular left central incisor (two defects, 3.5 mm, 3.7 mm), mandibular left lateral incisor (~3.2 mm), and mandibular left canine (~2.8 mm).

Preservation of the remains corresponds to weathering stage 4.

Bone and tooth morphology and the extent of cranial suture closure suggest an age at death likely between 35 and 50 years. Bone (especially pelvis) morphology suggests female sex.

Slight unusual bone deposits are on the anterior margins of the proximal hand phalanges.

BURIAL 54.—FN: Coffin wood was on the top, sides, and bottom of the burial. Wood beneath the human remains was better preserved than wood on the top and sides of the coffin. Plain and decorative nails were also associated with this burial. A rosary chain, apparently silver, with wooden black-lacquered beads, was found in the right hand. The rosary had a possibly wooden crucifix attached to it.

The incomplete remains are of an adult male. Bones present are all bones of the cranial vault (1); both zygomatics (1); mandible (1); both clavicles (1); manubrium (2); sternum (2); sacrum (1); both scapulae (2); both ilia (3); both patellae (1); two cervical vertebrae; all 12 thoracic vertebrae; all five lumbar vertebrae; all left ribs and 10 right ribs; left humerus (1); proximal epiphysis (3) and remainder (1) of the right humerus; both radii (1); left ulna (1); proximal epiphysis (2) and remainder (1) of the right ulna; both femora (1); both tibiae (1); proximal epiphysis (2), diaphysis (1), and distal epiphysis (1) of the left fibula; diaphysis (1) and epiphyses (2) of the right fibula; left hand navicular; left lunate; both triquetrals; one pisiform; both greater multangulars; both capitates; both hamates; left first metacarpal; right second metacarpal; right third metacarpal; one fourth metacarpal; one left fifth metacarpal; eight proximal hand phalanges; seven middle hand phalanges; nine distal hand phalanges; and all tarsals and metatarsals.

Permanent teeth present, in occlusion, are the maxillary left third molar and the following mandibular teeth: right third molar, right second premolar, root of the left first premolar, right canine, both lateral incisors, and left central incisor.

Permanent teeth lost antemortem from the maxillae were the left second molar, first molars, premolars, canines, and incisors, and from the mandible the left third molar; first and second molars, left second premolar, right first premolar, and right central incisor.

Carious lesions are on the occlusal surface of the maxillary left third molar; interproximal surfaces of the following mandibular teeth: right canine (two lesions), both lateral incisors, and left central incisor; cervical areas of the mandibular left central incisor (two lesions) and mandibular lateral incisor (two lesions); and large surface of the mandibular left first premolar.

Enamel defects, all in mandibular teeth, consist of linear horizontal grooves on the right canine (two defects, 6.5 mm, 2.9 mm), right lateral incisor (3.2 mm), left central incisor (4.5 mm), and left lateral incisor (3.7 mm).

Brown staining is on the mesial surface of the maxillary left third molar and the distal surface of the mandibular right second premolar.

Preservation of the remains corresponds to weathering stage 2. Green staining, likely indicating contact with copper, is on the hand phalanges and the ventral surface of the sacrum. Grey staining is on the ends of the long bones, skull, vertebrae, sacrum, and hand and foot bones. Apparent wood and a nail have adhered to the posterior surface of the right scapula.

Cranial suture closure and tooth loss suggest an age at death of 55 to 75 years. Bone morphology, especially that of the pelvis, suggests male sex.

Maximum length of the femur is 42.9 cm, suggesting a living stature of about 163.5 cm (5 ft 4.3 in) using the formulae for white males.

The skeleton shows robust areas of muscle attachment and extensive evidence of arthritic change. The glenoid fossae of the scapulae (especially on the right) show lipping. Osteophyte for-

mation is apparent on the cervical and lumbar vertebrae. Two thoracic vertebrae display evidence of fusion.

Radiographic examination of the distal left tibia revealed lines of increased density at locations about 10 mm and 35 mm from the distal metaphysis of the bone.

BURIAL 55.—FN: Three buttons were found in association with this burial, one in the upper torso region near the right clavicle, one near the distal ends of the right radius and ulna, and one near the distal ends of the left radius and ulna.

The incomplete remains are of a subadult. Bones present are the frontal (3); both parietals (3); both temporals (2); both maxillae (3); left palatine (3); mandible (3); sternum (3); both ilia (3); six cervical vertebrae; one thoracic vertebra; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the left humerus; proximal epiphysis (3) and proximal (2), middle (3), and distal (3) thirds of the right humerus; proximal epiphysis (2) and proximal (1), middle (1), and distal (3) thirds of the left radius; diaphysis (3) of the right radius; proximal epiphysis (1) and proximal (1), middle (2), and distal (3) thirds of the left ulna; diaphysis (3) of the right ulna; proximal epiphysis (2), diaphysis (1), and distal epiphysis (2) of the left femur; right femur (2); and one distal hand phalanx.

Permanent teeth present, in occlusion, are the first and second molars, first premolars, and central incisors; from the maxillae the right second premolar, right canine, and right lateral incisor; and from the mandible the first and second premolars, canines, and lateral incisors. The third molars are present but are not in occlusion.

Carious lesions of the interproximal surfaces of maxillary teeth are in the right first molar, right lateral incisor, and left central incisor; lesions of the large surfaces are in the maxillary left first molar and mandibular first molars. Alveolar abscesses are on both the lingual and the buccal surfaces associated with the maxillary left first molar.

One enamel defect is present, a linear horizontal groove on the maxillary right second molar (3.2 mm).

Preservation of the remains corresponds to weathering stage 4 or 5. Black staining is on the long bones, skull, and vertebrae.

The extent of dental formation suggests an age at death of 11 to 12.8 years.

BURIAL 56.—FN: A coffin outline and nails were associated with this burial. Hair was also present.

The incomplete remains are of a child. Bones present are both maxillae (3); left palatine (2); mandible (3); diaphysis (3) and distal epiphysis (2) of the left femur; proximal (3), middle (2), and distal (3) thirds and distal epiphysis (2) of the right femur; and diaphysis (3) of the left tibia.

Deciduous teeth present, in occlusion, are the second molars, maxillary first molars, maxillary right canine, and mandibular right first molar.

Permanent teeth present in occlusion are the first molars and incisors. Those not in occlusion are the second molars, first premolars, maxillary right second premolar, mandibular second premolars, and canines.

One carious lesion is on the interproximal surface of the deciduous right maxillary canine.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the femoral diaphyses, maxillae, and teeth.

The extent of dental formation suggests an age at death of about 9.5 years.

BURIAL 57.—No field notes are present. The site report states that one button was in the thoracic region and pennies were over the eyes. One penny was dated 1848 (Beynon, 1989:17).

The incomplete remains are of an adult, likely male. Bones present are the frontal (1); left (1) and right (2) parietals; occipital (1); left (1) and right (2) temporals; both zygomatics (1); both maxillae (1); both palatines (1); mandible (1); left clavicle (1); sacrum (3); both scapulae (3); both ilia (1); both ischia (3); first and second cervical vertebrae; four other cervical vertebrae; six thoracic vertebrae; five lumbar vertebrae; rib fragments; proximal epiphysis (1) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left humerus; proximal epiphysis (2) and proximal (2), middle (2), and distal (1) thirds and distal epiphysis (1) of the right humerus; proximal epiphysis (1), diaphysis (1), and distal epiphysis (3) of the left radius; proximal epiphysis (3) and diaphysis (3) of the right radius; proximal epiphysis (1) and diaphysis (1) of the left ulna; proximal epiphysis (1) and proximal (1) and middle (3) thirds of the right ulna; both femora (1); proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (1) of the left tibia; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the right tibia; proximal epiphysis (1) and proximal (2), middle (3), and distal (3) thirds of the left fibula; both calcanei; both tali; right cuboid; and right third cuneiform.

All permanent teeth except the mandibular left third molar (antemortem loss) are present, in occlusion.

One carious lesion is on the cervical area of the maxillary right first premolar.

Enamel defects consist of linear horizontal grooves on the maxillary right central incisor (6.4 mm), mandibular left (5.5 mm) and right (5.5 mm) lateral incisors, and mandibular left (4.5 mm) and right (4.3 mm) central incisors.

Preservation of the remains corresponds to weathering stage 4 or 5. Green staining is on the bones around the eye orbits. Black staining is on portions of all bones present. Desiccated soft tissue and hair (eyebrows) are also present (Figure 37).

The extent of dental formation, dental eruption, cranial suture closure, and other indicators suggest an age at death of 23 to 28 years. Pelvic morphology and general bone robusticity indicate probable male sex.

Maximum length of the femur is 47.7 cm, suggesting a living stature of 174.9 cm (5 ft 8.8 in).

BURIAL 58.—FN: Wood and nails were associated with this burial. No other artifacts were present. The size of the coffin suggests the burial was of a newborn.

About 30 grams of small, unidentifiable bone fragments are present. No estimate of age at death or sex is possible. The remains correspond to weathering stage 5.

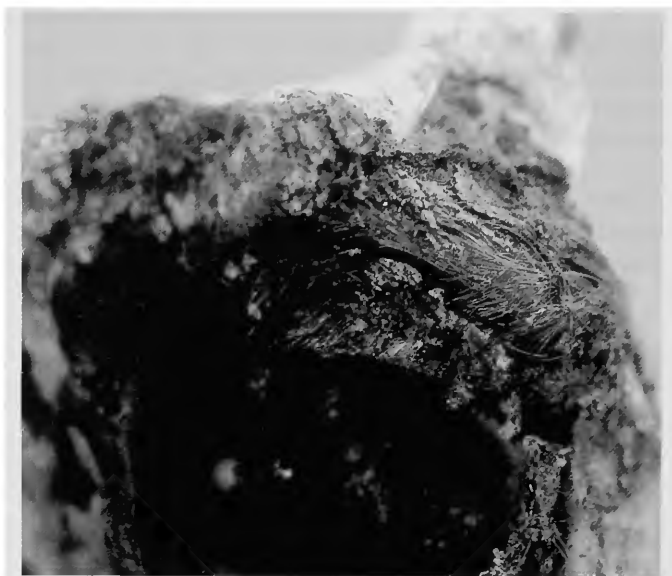


FIGURE 37.—Preserved eyebrow and soft tissue on cranium, burial 57.

BURIAL 59.—FN: The coffin sides in this burial were well preserved, with nails still intact in areas. A copper object, possibly a clasp, was recovered near the teeth.

Only a right temporal (3) and deciduous teeth of an infant about 8 months of age are present. Teeth, not in occlusion, are the right molars; from the maxillae the left first molar, right canine, lateral incisors, and left central incisor; and from the mandible the right first molar and left canine.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 60.—FN: Nails were the only associated artifacts recovered.

No human remains were recovered.

BURIAL 61.—FN: A coffin outline was associated with this burial. No other artifacts were present.

The incomplete remains are of an adult male. Bones present are the frontal (2); left (3) and right (2) parietals; occipital (1); left (3) and right (1) temporals; left (3) and right (2) zygomatics; left (2) and right (1) maxillae; both palatines (1); mandible (1); left clavicle (2); left (2) and right (3) scapulae; right patella (1); second cervical vertebra and three other cervical vertebrae; rib fragments; both humeri (1); proximal epiphysis (1) and diaphysis (3) of the left radius; proximal epiphysis (1) and proximal (1), middle (2), and distal (3) thirds of the right radius; proximal epiphysis (1) and diaphysis (3) of the left ulna; proximal epiphysis (1) and proximal (2), middle (3), and distal (3) thirds of the right ulna; both femora (1); left tibia (1); proximal epiphysis (3) and remainder (1) of the right tibia; diaphysis (1) of the left fibula; diaphysis (1) and distal epiphysis (1) of the right fibula; one metacarpal (side unknown); one proximal hand phalanx; three middle hand phalanges; both calcanei; both tali; one first metatarsal; and two middle foot phalanges.

Permanent teeth present, in occlusion, from the maxillae are the right third molar, second molars, first molars, left second premolar, and first premolars, and from the mandible the right second molar, first molars, right premolars, and right canine. The mandibular third molars and mandibular left second molar were lost antemortem.

Carious lesions are on the interproximal surfaces of the maxillary left second molar and mandibular right second molar and large surfaces of both maxillary first molars.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the skull, long bones, vertebrae, and scapulae.

The extent of dental formation, dental eruption, antemortem dental loss, vertebral osteophytosis, and cranial suture closure suggest an age at death of 30 to 40 years. Pelvic morphology and general bone robusticity suggest male sex.

Maximum femur length is 44.1 cm, suggesting a living stature of 168.8 cm (5 ft 6.5 in).

BURIAL 62.—FN: The only artifacts associated with this burial were two brass buttons recovered from the innominate region and three glass buttons.

The incomplete remains are of an adult male. Bones present are the cranium (3); right clavicle (3); right scapula (3); right ilium (3); both patellae (1); three cervical vertebrae; two thoracic vertebrae; four lumbar vertebrae; one right rib; middle (3) and distal (2) thirds and distal epiphysis (1) of the left humerus; proximal epiphysis (3) and proximal (3), middle (2), and distal (1) thirds and distal epiphysis (1) of the right humerus; left radius (1); distal epiphysis (3) and remainder (1) of the right radius; both ulnae (1); both femora (1); both tibiae (1); proximal epiphysis (3) and remainder (1) of the left fibula; diaphysis (1) and distal epiphysis (2) of the right fibula; left hand navicular; both lunates; left triquetral; both pisiforms; left greater multangular; left lesser multangular; both capitates; both hamates; first, second, and third metacarpals (left and right); right fourth metacarpal; both fifth metacarpals; four proximal hand phalanges; three middle hand phalanges; one distal hand phalanx; both calcanei; both tali; both cuboids; left third cuneiform; right foot navicular; first four metatarsals (left and right); left fifth metatarsal; and one proximal foot phalanx.

Permanent teeth present, all from the left side and in occlusion, are the maxillary first molar, maxillary premolars, maxillary incisors, mandibular second molar, and mandibular second premolar.

An interproximal carious lesion is on the left mandibular second premolar.

Enamel defects consist of linear horizontal grooves on the maxillary left central incisor (two defects, 6.7 mm, 5.2 mm), maxillary left first premolar (two defects, 5.5 mm, 2.5 mm), maxillary left first molar (1.6 mm), mandibular left second premolar (2.9 mm), and mandibular left second molar (1.5 mm) and linear horizontal pits on the maxillary left central incisor (8.3 mm) and mandibular left second premolar (4.5 mm).

Preservation of the remains corresponds to weathering stage 4. Black staining is on the long bones, patellae, hand bones, foot bones, right pelvis, and vertebrae.

The extent of arthritic change suggests an age at death of 20 to 30 years. Skeletal robusticity suggests male sex.

Maximum femur length is 44.1 cm, suggesting a living stature of 166.4 cm (5 ft 5.5 in).

BURIAL 63.—FN: A coffin outline and nails were associated with the human remains. Fragments of coffin wood and fabric were recovered from beneath the remains. Other artifacts include straight pins found in association with the skull; two buttons, one near the lower pelvis and one, a shell button, recovered from the posterior upper innominate region; and two coins, one copper, about 3 cm in diameter, with apparent wood and fabric adhering to it recovered in the region of the left scapula, and one of unidentified material located under the left scapula.

The incomplete remains are of an adult, likely male. Bones present are the frontal (3); both parietals (3); occipital (1); left (3) and right (1) temporals; mandible (1); left (3) and right (1) clavicles; both scapulae (3); both ilia (3); left ischium (3); right patella (1); first cervical vertebra; four other cervical vertebrae; two lumbar vertebrae; other vertebrae fragments; one left first rib; two right ribs; additional rib fragments; proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds of the left humerus; proximal epiphysis (3), proximal third (3), and remainder (1) of the right humerus; proximal epiphysis (3) and proximal (3), middle (1), and distal (2) thirds and distal epiphysis (1) of the left radius; proximal (3), middle (1), and distal (3) thirds of the right radius; proximal (3), middle (1), and distal (3) thirds of both ulnae; proximal epiphysis (3) and proximal (1), middle (2), and distal (2) thirds and distal epiphysis (2) of the left femur; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (1) of the right femur; proximal epiphysis (1) and proximal (2), middle (2), and distal (3) thirds and distal epiphysis (3) of the left tibia; right tibia (1); diaphysis (3) of the left fibula; right fibula (1); left triquetral; one pisiform; right hamate; left second metacarpal; both fourth metacarpals; two proximal hand phalanges; one middle hand phalanx; both calcanei; both tali; right cuboid; one first cuneiform; one third cuneiform; one foot navicular; one left first metatarsal; one left third metatarsal; and one left fifth metatarsal.

Permanent teeth present, in occlusion, from the maxillae are the left third molar, second molars, first molars, and left first premolar, and from the mandible the right premolars, left canine, and lateral incisors. The mandibular right molars and mandibular left second molar were lost antemortem.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the left scapula and left clavicle. Black staining is on all bones except the cervical vertebrae. Desiccated soft tissue is adhered to the left scapula.

The extent of dental attrition, cranial suture closure, and arthritic changes suggest an age at death of 30 to 35 years. The presence of large mastoid processes on the temporals and the pelvic morphology suggest male sex, although the bones are within the small end of the size range for males.

BURIAL 64.—No artifacts were recovered. The size of the coffin suggests the burial was of an infant.

No human remains were recovered.

BURIAL 65.—FN: Coffin wood (fragments from the walls and floor) and nails were associated with this burial. Pink paint was on some of the coffin wood.

The incomplete remains are of a child. Bones present are the frontal (3), both parietals (3), right temporal (1), right maxilla (2), right palatine (1), and mandible (2).

Deciduous teeth present, in occlusion, from the maxilla are the molars, canines, and central incisors; all mandibular teeth are present.

Permanent teeth present, not in occlusion, are the first molars, maxillary left canine, maxillary left lateral incisor, central incisors, and mandibular right first premolar.

Cariou lesions in the deciduous dentition are on the occlusal surfaces of the mandibular right second molar (2 lesions), mandibular right first molar, and mandibular left second molar and the interproximal surfaces of the maxillary right central incisor, maxillary left central incisor (2 lesions), and both mandibular central incisors.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 2.8 years.

BURIAL 66a.—FN: A dark brown powdery lens of soil marked the top of the coffin. White-capped nails were the only associated artifacts found with this burial.

Only the temporals (3) and the following deciduous maxillary teeth, not in occlusion, of an infant are present: first molars, right lateral incisor, and central incisors. The extent of tooth formation suggests an age at death of about 1 year.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 66b.—FN: This burial was directly below burial 66a. A coffin outline and nails were associated with the burial.

Only two bones, the occipital (3) and one arch from a thoracic vertebra, of a mature fetus or newborn are present.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the basilar occipital.

The extent of bone formation suggests a fetal age at death of about 9 to 9.5 lunar months.

BURIAL 67a.—FN: Decorated and undecorated nails and cloth adhering to the wooden coffin walls, with brass or copper rickrack trim on top of the cloth, were recovered from this burial. Pins (probably straight pins) and a button were also in association with the burial.

No human remains were recovered.

The size of the coffin suggests the burial was of an infant.

BURIAL 67b.—FN: This grave was discovered directly beneath burial 67A. Wood staining and nails were associated with the burial. The coffin outline was the size of a small infant.

No human remains were recovered.

BURIAL 68.—There are no field data for this burial; no human remains were recovered.

BURIAL 69.—FN: A coffin outline, wood fragments, and nails were associated with this burial.

No human remains were recovered.

BURIAL 70.—This unidentified feature was not a burial.

BURIAL 71.—FN: Decorated and undecorated nails, coffin wood, cloth with copper or brass rickrack similar to that seen in burial 67a, and glass buttons recovered along the midline of the lower body were found in association with this burial.

Only the following deciduous teeth, in occlusion, of an infant are present: maxillary right canine, mandibular right second molar, and mandibular left first molar. The extent of formation of these teeth suggests an age at death of about 8 months.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 72.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

Only a petrous portion of a temporal bone (3) is present. The size of the bone suggests an age at death of newborn to 5 years. Preservation of the remains corresponds to weathering stage 4.

BURIAL 73.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

Only very fragmentary cranial bones are present, representing an infant newborn to two years of age. Recognizable bones are the frontal (3) and right maxilla (3).

Preservation of the remains corresponds to weathering stage 4.

BURIAL 74.—FN: Nails were the only associated artifacts.

The incomplete remains are of a child. Bones present are the left parietal (2), occipital (2), left (3) and right (2) temporals, sphenoid (2), long-bone fragments, and two proximal hand phalanges.

Deciduous teeth present, in occlusion, are the first molars.

Permanent teeth present, not in occlusion, are the right first molars, premolars, canines, lateral incisors, left central incisors, and mandibular left first molar.

Enamel defects consist of linear horizontal grooves on the maxillary right lateral incisor (1.5 mm) and maxillary right (4.8 mm) and left (4.7 mm) central incisors, and diffuse-boundary, brown hypocalcification on the maxillary left canine (5.0 mm), mandibular left lateral incisor (2.2 mm), and mandibular left canine (4.5 mm).

Preservation of the remains corresponds to weathering stage 4. Black staining is on both the teeth and the bone fragments.

The extent of dental formation suggests an age at death of 3.5 to 4.8 years.

BURIAL 75.—FN: Cloth and nails established the perimeter of the coffin. The cloth is narrow, about 2 cm wide, and appears to have been attached to the coffin at one time with small tacks and straight pins. Other artifacts are plain nails and white-capped metal nails. The coffin was sized for a small infant.

Only about 6 grams of small bone fragments are present. The remains correspond to weathering stage 5. Black staining is on all the fragments. None of the fragments are recognizable as a specific bone, and no reliable estimate of sex or age is possible.

BURIAL 76.—FN: A coffin outline and nails were associated with this burial. Nails were also recovered at the northern end of the burial but may have been associated with a higher-elevation burial that overlapped it. Also in this area were two buttons. A thin layer of wood with a reddish pigment on its upper surface

was found in the middle area of the coffin. Beneath this layer was another layer of wood with black, apparent pigment on its upper surface. Between these two wood layers lay fragments of spiraled wire, thin looped wire, and straight pins, all of a bluish color that may represent copper or brass. There were also traces of fabric in this middle area. The coffin was sized for a very small infant.

No human remains were recovered.

BURIAL 77.—FN: A coffin outline and wood fragments (from the walls and lid) were associated with this burial. The coffin hardware consisted of nails, screws, and two metal objects, possibly corner braces.

The fragmentary remains are of an infant. Recognizable bone fragments are the occipital (3), sphenoid, and three thoracic vertebrae.

Deciduous teeth present, not in occlusion, are the right second molars.

Preservation of the remains corresponds to weathering stage 4.

The extent of tooth formation suggests an age at death of 0 to 6 months.

BURIAL 78.—FN: A coffin outline, wood fragments, unidentified coffin-end hardware, and nails were associated with the human remains. Other artifacts found were two copper hooks and eyes.

A temporal bone (3) and all deciduous maxillary teeth, in occlusion, except the canines are present.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth.

The stage of dental formation suggests an age at death of 0 to 6 months.

BURIAL 79.—FN: A coffin outline, wood fragments, and nails were associated with this burial. Two straight pins were also recovered, one on each side of the mandible region, as well as light-colored hair.

The incomplete remains are of a child. Bones present are the frontal (3) and left (2) and right (3) temporals. Light-colored hair is also present.

Deciduous teeth present, not in occlusion, are the left lateral incisor and central incisors, and from the maxillae the second molars, right first molar, canines, and right lateral incisor.

The deciduous maxillary second molars display occlusal carious lesions.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth.

The extent of dental formation suggests an age at death of about 2 to 4 years.

BURIAL 80.—FN: A coffin outline and nails were in association with this burial. Around the central portion of the coffin was an apparent leather handle with intact nails (one of which had a white metal head).

Remains present are both temporal bones (3) and teeth of an infant. Deciduous teeth present, not in occlusion, are from the maxillae: first molars, right lateral incisor, and central incisors.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth.

The extent of dental formation suggests an age at death of 0 to 6 months.

BURIAL 81.—FN: A coffin outline was associated with this burial. Other artifacts were a small fragment of cloth and tacks from the exterior of the coffin and a thin piece of metal, possibly a straight pin, recovered from the northern half of the burial.

Only the temporal bones (3) of a young infant are present.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 82.—FN: A coffin outline and a wooden coffin-wall fragment were associated with this burial. A green glass bead, three white buttons on the midline around the thoracic area, a small portion of fabric, and two shoe soles with their decomposed uppers were also recovered.

The incomplete cranial bones and teeth are of an infant. Bones present are the occipital (3), left (2) and right (3) temporals, and a sphenoid.

Six deciduous teeth are present but are not in occlusion: the maxillary right molars, maxillary left first molar, mandibular second molars, and mandibular left first molar.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 3 to 8 months.

BURIAL 83.—FN: A coffin outline and nails were associated with this burial, which apparently was cut into and disturbed by burial 82.

No human remains were recovered.

BURIAL 84.—No field notes exist for this burial.

The incomplete remains are of an adult male. Bones present are the frontal (2), left (1) and right (2) parietals, occipital (3), left (3) and right (1) temporals, both zygomatics (1), both maxillae (1), and both palatines (1).

Permanent teeth present, in occlusion, are the maxillary molars, maxillary premolars, and maxillary right canine.

Interproximal carious lesions are on the maxillary left second and third molars.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the maxillae and zygomatics.

Bone formation and dental attrition suggest a likely age at death of 25 to 35 years. Cranial robusticity suggests male sex.

BURIAL 85.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

Several cranial bones of a small infant are present: both parietals (3), left temporal (3), and sphenoid.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the temporal bone.

The size of the bones indicates a likely age at death of newborn to 1 year.

BURIAL 86.—FN: Wood staining, wood fragments, and nails were associated with this burial. No other artifacts were present. The size of the coffin stain suggests the burial was of a small infant.

One temporal bone (3) is present. Its preservation corresponds to weathering stage 5.

BURIAL 87.—FN: A coffin outline and nails were associated with this burial. Other artifacts were two copper pins recovered from the proximal innominate region.

The incomplete remains are of a young infant (Figure 38). Bones present are the frontal (2), left parietal (2), occipital (1), left temporal (1), both zygomatics (1), both maxillae (1), both palatines (1), mandible (1), both clavicles (1), sacrum (2), both scapulae (1), both ilia (1), right ischium (1), five cervical vertebrae, all thoracic vertebrae, five lumbar vertebrae, all ribs, all long-bone diaphyses (1), four metacarpals, six proximal hand phalanges, three middle hand phalanges, and four distal hand phalanges.

Deciduous teeth present, not in occlusion, are the maxillary first molars, maxillary lateral incisors, and the central incisors.

Preservation of the remains corresponds to weathering stage 0.

The extent of dental formation suggests a likely age at death of 2 to 4 months.



FIGURE 38.—Well-preserved infant remains, burial 87.

BURIAL 88.—FN: Nails and wood fragments from the coffin walls and floor were associated with this burial. No other artifacts were present.

Two deciduous teeth, not in occlusion, of an infant are present: the maxillary right canine and mandibular right second molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the teeth.

The extent of dental formation suggests an age at death of 0.5 to 1 year.

BURIAL 89.—FN: Nails, a wood fragment, and an unidentified piece of iron hardware were associated with this burial. No other artifacts were present.

The incomplete remains are of a young infant. Bones present are the occipital (3), both temporals (2), right ischium (1), one cervical vertebra, one thoracic vertebra, one lumbar vertebra, and one distal hand phalanx.

No teeth are present.

Preservation of the remains corresponds to weathering stage 3.

Bone size suggests that a newborn is represented.

BURIAL 90.—FN: A blue layer of paint covered the coffin. A partial coffin outline and nails were also associated with this burial. The coffin size suggests the burial was of a small infant.

No human remains were recovered.

BURIAL 91.—FN: A coffin outline, nails, and wood fragments from the base of the coffin were associated with this burial. No other artifacts were present. The coffin was sized for an infant.

A small quantity of bone fragments is present. Only a temporal (3) fragment is recognizable.

Bone weathering corresponds to stage 5.

BURIAL 92.—FN: Nails and wood fragments were associated with this burial. No other artifacts were present.

Four deciduous teeth, not in occlusion, of an infant are present: the left second molars and maxillary lateral incisors.

Black staining is on the teeth.

The extent of dental formation suggests an age at death of about 6 months.

BURIAL 93.—FN: A coffin outline was associated with this burial. No other artifacts were present.

One temporal (3) and deciduous teeth, not in occlusion, of an infant are present: the second molars, canines, maxillary lateral incisors, mandibular left first molar, and mandibular left lateral incisor.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth and temporal.

The extent of dental formation suggests an age at death of 0 to 6 months.

BURIAL 94.—FN: A coffin outline and nails were associated with the human remains. No other artifacts were present.

An eroded bone fragment and the permanent maxillary first molars, not in occlusion, of an infant are present.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth.

The extent of dental formation suggests an age at death of 1 to 1.3 years.

BURIAL 95.—FN: In association with this burial were sections of the wooden coffin walls with adhering fabric in places and braid work of an unidentified material along the coffin perimeter. Metal items recovered included nails, screws, and bolts. A variety of button types were found in the upper torso region of the individual.

The incomplete remains are of a child. Bones present are the frontal (2); both parietals (2); occipital (2); both temporals (2); left zygomatic (3); both maxillae (1); both palatines (1); mandible (2); sternum (3); one ilium (3); one ischium (3); all cervical vertebrae; diaphysis (3) of the left femur; proximal epiphysis (3) and remainder (1) of the right femur; proximal (3), middle (2), and distal (3) thirds of the left tibia; proximal epiphysis (2), diaphysis (1), and distal epiphysis (2) of the right tibia; proximal (3), middle (1), and distal (3) thirds of the right fibula; right calcaneus (1); right talus (1); and right foot navicular (1).

Deciduous teeth present, in occlusion, are the central incisors, maxillary molars, mandibular right molars, and mandibular right lateral incisor.

Permanent teeth present, not in occlusion, from the maxillae are the left second molar, left first molar, canines, and right central incisor, and from the mandible the left first molar.

Preservation of the remains corresponds to weathering stages 4 to 5. Black staining is on the skull, left femur, pelvis, and teeth.

The extent of dental formation suggests an age at death of about 6 to 6.3 years.

BURIAL 96.—FN: A sand-filled box of unidentified metal next to the cranium was recovered from the burial (Figure 39). A fragment of wood was the only other associated object.

The incomplete remains are of an adult male. Bones present are the frontal (3); both parietals (3); occipital (2); left (3) and right (1) temporals; left zygomatic (2); both maxillae (2); both palatines (1); mandible (1); right clavicle (2); both scapulae (3); left (2) and right (1) ilia; right ischium (2); both patellae (1); three cervical vertebrae; three thoracic vertebrae; three lumbar vertebrae; both humeri (1); proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the left radius; proximal epiphysis (1) and proximal (1), middle (2), and distal (3) thirds and distal epiphysis (2) of the right radius; proximal epiphyses (1) and proximal (1) and middle thirds (3) of the ulnae; proximal epiphysis (1) and proximal (1), middle (1), and distal (3) thirds and distal epiphysis (1) of the left femur; right femur (1); proximal (3), middle (2), and distal (3) thirds of the left tibia; proximal epiphysis (1), diaphysis (1), and distal epiphysis (2) of the right tibia; middle third (3) of the left fibula; right fibula (1); one second metacarpal; one other metacarpal; one middle hand phalanx; both tali; one first cuneiform; and both foot naviculars.

Permanent teeth present, in occlusion, from the maxillae are the first and second molars, premolars, right canine, and left central incisor, and from the mandible the left first and second molars, right premolars, right canine, and right lateral incisor. Permanent teeth lost antemortem were the maxillary third molars, mandibular right third molar, and mandibular left second premolar.

Semicircular facets in four areas of the occlusal dentition likely represent pipewear. The alterations are on the mesial sur-



FIGURE 39.—Burial 96 with associated metal box.

face of the maxillary right first premolar, distal and mesial surfaces of the right maxillary canine, mesial surface of the left first maxillary premolar, distal and mesial surfaces of the mandibular right canine, and general occlusal surface of the mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all the bones.

The extent of suture closure and dental attrition suggest an age at death of 40 to 45 years. Pelvic morphology and general bone size suggest male sex.

BURIAL 97.—FN: A coffin outline and nails were associated with the human remains. Pink paint was evident on the interior of the coffin walls. No other artifacts were present. The coffin was sized for an infant or small child.

No human remains were recovered.

BURIAL 98.—FN: A coffin outline, wood fragment, nails, and one decorated nail were in association with this burial. Fragments of fabric and copper rickrack and a copper hook and eye found in the mouth region were also recovered.

The incomplete cranial bones and teeth are of a young child. Bones present are the left parietal (2) and both temporals (3).

The deciduous maxillary right central incisor is present but is not in occlusion.

The permanent maxillary right first molar and maxillary right incisors are present but are not in occlusion.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 1 to 1.3 years.

BURIAL 99.—FN: This burial was a highly disturbed area next to feature 5 and a telephone pole. The only artifacts associated with the human remains were two nails. Coffin wood with an intact decorated nail was found on the western edge of feature 5. Other artifacts in feature 5 were unidentified historic ceramic, metal, and glass and prehistoric pottery (possibly shell tempered). Feature 5 is believed to be from the utility excavation for the telephone pole.

Only very fragmentary bone fragments (weathering stage 5) are present. No reliable estimate of sex or age can be made.

BURIAL 100.—FN: A coffin outline and nails were associated with this burial. Glass buttons were also found; one located in the middle of the chest region was decorated with green flowers. Other artifacts included an unidentified orange spherical object (near the left scapula) and an unidentified red object (near the hands, which were over the innominate region).

The incomplete remains are of a subadult, probably female. Bones present are the frontal (2); both parietals (3); occipital (2); both temporals (2); left (3) and right (2) maxillae; both palatines (1); mandible (3); both clavicles (3); both ilia (2); left ischium (3); proximal (2), middle (1), and distal (3) thirds of the left humerus; middle (2) and distal (1) thirds of the right humerus; fragments of the radii and ulnae; proximal epiphyses (1), diaphyses (1), and distal epiphyses (2) of the femora; proximal epiphysis (2) and proximal (3), middle (1), and distal (3) thirds of the left tibia; proximal (3), middle (1), and distal (3) thirds of the right tibia; left second metacarpal (2); one middle hand phalanx; left (3) and right (2) calcanei; and left talus (3).

Permanent teeth present, in occlusion, are all maxillary teeth except the right third molar, and from the mandible the canines, lateral incisors, and left central incisor.

An occlusal carious lesion is on the maxillary left first molar.

A linear hypoplastic lesion is on the maxillary left second molar (3.5 mm).

Bone preservation corresponds to weathering stage 4. Black staining is on many of the bones and teeth.

The stage of dental formation suggests an age at death of about 16.5 years. Pelvic morphology and bone size suggest female sex.

BURIAL 101.—No associated artifacts were indicated in the field notes.

The incomplete remains are of an adult, probably female. Bones present are the frontal (1); both parietals (1); occipital (1); left (1) and right (2) temporals; left zygomatic (1); left (1) and right (3) maxillae; both palatines (1); mandible (1); left (2) and right (1) clavicles; sacrum (3); both scapulae (2); both ilia (2); first and second and three other cervical vertebrae; fragments of

thoracic vertebrae; middle (1) and distal (3) thirds and distal epiphysis (2) of the left humerus; middle (2) and distal (1) thirds of the right humerus; middle (2) and distal (2) thirds of the right radius; middle (1) and distal (2) thirds of the right ulna; proximal epiphyses (1) and proximal (2), middle (1), and distal (2) thirds of the femora; proximal (2), middle (1), and distal (2) thirds of the left tibia; proximal epiphysis (2) and middle third (1) of the left fibula; left calcaneus (2); right second cuneiform (1); and right first, second, third, and fourth metatarsals (2).

Permanent teeth present, in occlusion, from the maxillae are the left third molar, left second premolar (damaged), left first premolar, left canine (damaged), left lateral incisor (damaged), and left central incisor, and from the mandible the right second molar, first molars, right second premolar, first premolars, canines, right lateral incisor, and central incisors.

The left second and third molars, maxillary left first molar, and mandibular right third molar were lost antemortem.

Cariou lesions are on the large surfaces of the maxillary left second premolar, maxillary left canine, and maxillary left lateral incisor; occlusal surface of the maxillary left third molar; interproximal surfaces of the mandibular right first (two lesions) and second molars and mandibular left first molar; and smooth surface of the mandibular left first molar. Alveolar abscesses in the buccal or labial channel are associated with the maxillary left second premolar and the maxillary left canine.

Preservation of the remains corresponds to weathering stage 3.

The extent of cranial suture closure suggests an age at death of 30 to 40 years. General bone size suggests female sex.

BURIAL 102.—FN: The only associated artifacts were nails and a straight pin recovered near the teeth.

The incomplete cranial bones and teeth are of a young infant. Bones present are both temporals (3) and the mandible (3).

Deciduous teeth present, not in occlusion, from the maxillae are the right molars, left first molar, canines, and right central incisor, and from the mandible the second molars, right first molar, and canines.

Permanent teeth present, not in occlusion, are the right first molars.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the teeth and temporal bones.

The extent of dental formation suggests an age at death of 0.3 to 1 year.

BURIAL 103.—FN: Nails and one straight pin found south of the cranium fragments were the only associated artifacts.

Only the occipital (3) and both temporals (2) of a young infant are present.

Preservation of the remains corresponds to weathering stage 4.

The extent of bone development suggests an age at death of 0.3 to 1 year.

BURIAL 104.—FN: A coffin outline and eight white buttons were the only associated artifacts.

The incomplete remains are of an adult, likely female. Bones present are the frontal (2), occipital (3), both temporals (1), mandible (2), and long-bone fragments, including parts of both femora.

Teeth present are the left first molars (damaged). The mandibular left second and third molars appear to have been lost antemortem.

A large occlusal carious lesion is on the maxillary left first molar.

Bone weathering corresponds to stage 4.

The extent of dental wear and tooth loss generally suggest an age at death of 30 to 70 years. A wide gonial angle on an ilium suggests likely female sex.

BURIAL 105.—FN: A construction trench had disturbed this burial and left its southernmost end exposed. Nails were the only associated artifacts recovered.

No human remains were recovered.

BURIAL 106.—FN: Nails were the only associated artifacts.

Only small bone fragments are present. Preservation of the remains corresponds to weathering stage 5.

No reliable estimate of age or sex can be made.

BURIAL 107.—FN: A coffin outline and nails were associated with this burial. Other artifacts included decorated coffin nails; cloth made partly of wool with a braided metal decoration; three white glass buttons found in the thoracic vertebral region, one of which was covered with leather; two coins also found in the thoracic vertebral region; and a pair of leather slippers.

The incomplete remains are of an infant. Bones present are eight thoracic vertebrae and one left and one right rib.

Permanent teeth present, not in occlusion, are the maxillary right first molar, maxillary central incisors, and mandibular right first molar.

Preservation of the remains corresponds to weathering stage 2. Green (likely copper) staining is on the thoracic vertebrae.

The extent of dental formation suggests an age at death of 1 to 2 years.

BURIAL 108.—FN: A coffin outline, wood fragments, and nails were associated with this burial. One copper button was recovered from beneath the right hand, which was crossed under the left hand on top of the pelvis. Short brown hair was found near the skull.

The incomplete remains are of an adult male. Bones present are the left parietal (2); occipital (1); left temporal (2); mandible (1); both clavicles (1); sacrum (3); both scapulae (2); both ilia (1); left ischium (3); both patellae (1); first and second cervical vertebrae; seven thoracic vertebrae; two lumbar vertebrae; both first ribs; two left and two right other ribs; proximal epiphysis (2) and proximal (3) and middle thirds (3) and remainder (1) of the left humerus; proximal epiphysis (2) and remainder (1) of the right humerus; proximal epiphysis (1) and diaphysis (1) of the left radius; proximal epiphysis (1) and diaphysis (1) of the left ulna; proximal epiphysis (3) and proximal (1), middle (1), and distal (3) thirds of the right ulna; both femora (1); proximal epiphysis (1), diaphysis (1), and distal epiphysis (2) of the left tibia; proximal epiphysis (1) and proximal (1), middle (1), and distal (3) thirds and distal epiphysis (3) of the right tibia; proximal epiphysis (3) of the left fibula; middle third of the right fibula (3); one metacarpal; four proximal hand phalanges; both calcanei;

both tali; left cuboid; right first cuneiform; one foot navicular; and five metatarsals.

All permanent mandibular teeth are present, in occlusion, except the right first and second molars, lost antemortem.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all bones. Some hair is present.

The extent of cranial suture closure and dental attrition suggest an age at death of 25 to 30 years. Pelvic morphology and bone size suggest male sex.

BURIAL 109.—FN: A coffin outline and nails were found in association with this burial. Other artifacts include two straight pins recovered in the thoracic region.

The incomplete remains are of a young infant. Bones present are the frontal (3), left parietal (3), occipital (3), mandible (2), and nine vertebrae.

Deciduous teeth present, not in occlusion, are the mandibular right second molar and mandibular left canine.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all bones.

The extent of dental formation suggests an age at death of about 1 to 2 months.

BURIAL 110.—There are no field notes for this burial; no human remains were recovered.

BURIAL 111.—FN: Nails were the only artifacts present with the human remains.

The incomplete remains are of an adult male. Bones present are the frontal (1); both parietals (1); occipital (1); left (2) and right (1) temporals; left (2) and right (3) zygomatics; both maxillae (1); both palatines (1); mandible (1); both clavicles (1); sacrum (3); both scapulae (3); both ilia (2); both ischia (1); left (2) and right (1) pubes; left (1) and right (2) patellae; all cervical vertebrae; 11 thoracic vertebrae; both first ribs; seven left and five right other ribs; all long bones (1); left hand navicular; both lunates; left triquetral; one pisiform; right greater multangular; both lesser multangulars; both capitates; both hamates; all metacarpals except the right first; four proximal hand phalanges; three middle hand phalanges; one distal hand phalanx; both calcanei; both tali; right cuboid; all cuneiforms but the left first; left foot navicular; and all metatarsals.

Permanent teeth present, in occlusion, are the third molars; from the maxillae the second molars, first molars (damaged), second premolars, left first premolar, and incisors; and from the mandible the right second molar and left first premolar. The maxillary left canine, mandibular left second molar, mandibular first molars, mandibular second premolars, and mandibular right first premolar were lost antemortem.

Carious lesions are on the interproximal surfaces of the maxillary left and right second premolars and maxillary left lateral incisor; large surfaces of the maxillary first molars and mandibular right third molar; smooth surface of the mandibular right second molar; and occlusal surface of the mandibular right second molar.

One enamel defect is present, a linear horizontal groove on the mandibular left third molar (~7.3 mm).

Preservation of the remains corresponds to weathering stage 2. Some hair is present.

The extent of osteophytosis, other arthritic changes, and cranial suture closure suggest an age at death of 30 to 35 years. Large bone size suggests male sex.

Maximum femur length is 50.3 cm, suggesting a living stature of 181 ± 3.3 cm (5 ft 10 in to 6 ft 1 in).

The right radius shows marked irregularity of the radial tuberosity (Figure 40), site of the insertion of the biceps brachii muscle, flexor of the forearm. A radiograph of a tibia revealed no lines of increased density.

BURIAL 112.—FN: A coffin outline was associated with this burial. Artifacts recovered were two coins, one over each eye.

The incomplete remains are of an adult male. Bones present are the frontal (2); left (3) and right (1) parietals; occipital (1); right temporal (1); both zygomatics (1); both maxillae (1); both palatines (1); mandible (1); left (3) and right (2) clavicles; left (2) and right (3) scapulae; left (2) and right (3) ilia; left (3) ischium; patellae (1); first cervical vertebra; three other cervical vertebrae; three thoracic vertebrae; rib fragments; both humeri (1); both radii (1); left ulna (1); distal epiphysis (2) and remainder (1) of the right ulna; left femur (1); proximal epiphysis (2) and remainder (1) of the right femur; proximal epiphysis (3) and remainder (1) of the left tibia; right tibia (1); epiphyses (3) and diaphyses (1) of both fibulas; all left carpal bones; first four left metacarpals; right fifth metacarpal; four proximal hand phalanges; two middle hand phalanges; one distal hand phalanx; left calcaneus; both tali; left second cuneiform; both third cuneiforms; both foot naviculars; and right first and second metatarsals.

Permanent teeth present, in occlusion, are all maxillary teeth except the third molars (either congenitally missing or lost antemortem), and from the mandible the second molars, premolars, canines, and lateral incisors. The mandibular first molars were lost antemortem; the mandibular third molars were either congenitally missing or lost antemortem.

Alveolar abscesses in the buccal or lingual channel are associated with the maxillary first molars.

Preservation of the remains corresponds to weathering stage 4. Green staining is in the area of both eye orbits and the maxillae. Black staining is on the ribs, vertebrae, cranium (Figure 41), and mandible. What is apparently desiccated eye tissue with green (copper) staining is within the eye orbits (field notes reference coins found within the orbits).

The extent of arthritic change, cranial suture closure, and dental attrition suggest an age at death of 40 to 50 years. The large bone size suggests male sex.

Maximum femur length is 45.9 cm, suggesting a living stature of 170.7 cm (5 ft 7.2 in).

An old healed fracture is on the proximal third of the diaphysis of the left fourth metacarpal. The fracture is 22 mm from the proximal end of the bone, with the posterior dislocation at about a 45° angle.

The left third metacarpal is normal except for an irregular, well-remodeled, smooth-walled bony deposit about 12×6 mm on the lateral surface immediately inferior to the midshaft.

Semicircular wear facets are on the maxillary left canine (mesial surface) and the distal surface of the left maxillary lateral incisor (Figure 42). The opening between the teeth formed by the facets measures about 8 mm in diameter, with about one-half of the crowns affected. The opening is slightly more inferior on the posterior (lingual) surface, indicating that a pipe was likely habitually held between the teeth at an angle (bowl more superior than the stem).

BURIAL 113.—FN: The north and south ends and east side of the coffin were the only sides distinguishable. Nails were the only other artifacts present. The skeleton of an adult was present, but no remains were available for analysis.

BURIAL 114.—FN: The head of the coffin was more visible than its sides and foot. Earrings, recovered near the mastoid processes, were the only associated artifacts. Some hair was present.

The incomplete remains are of a child. Bones present are the frontal (1); both parietals (1); occipital (1); both temporals (2);

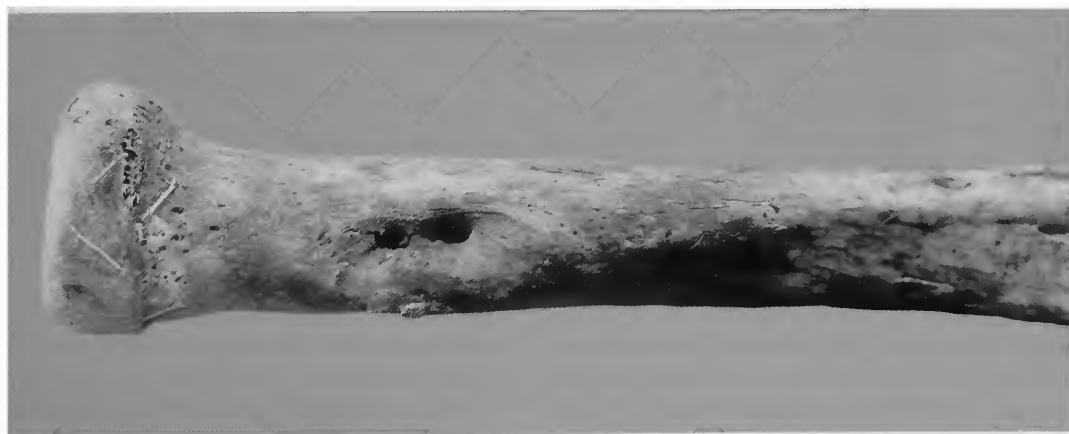


FIGURE 40.—Defect of radial tuberosity, burial 111.



FIGURE 41.—Black staining on endocranial surface, burial 112.



FIGURE 42.—Pipewear, burial 112.

both maxillae (2); both palatines (1); mandible (1); right scapula (3); both ilia (3); second cervical vertebra; five other cervical vertebrae; 10 thoracic vertebrae; four lumbar vertebrae; middle third (3) of the diaphysis of both humeri; both femora (3); and both tibiae (3).

Deciduous teeth present, in occlusion, are the maxillary molars, maxillary canines, and mandibular right molars.

Permanent teeth present in occlusion are the first molars, incisors, and mandibular left premolars. The other permanent teeth are present but are not in occlusion.

In the deciduous dentition, carious lesions are on a large surface of the maxillary left second molar and on the occlusal surface of the mandibular right molars.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the bones of the cranium, mandible, vertebrae, and long bones.

The extent of dental formation suggests an age at death of 10 to 10.5 years. The presence of earrings suggests female sex.

BURIAL 115.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

Present are cranial and teeth fragments of an infant of undetermined age.

BURIAL 116.—FN: A construction trench had disturbed this burial and left its southernmost end exposed. Nails and fragments of cloth were the only associated artifacts recovered.

No human remains were recovered.

BURIAL 117.—FN: A coffin outline and nails were the only associated artifacts. Some hair was present.

The incomplete remains are of an adult female. Bones present are the frontal (1); both parietals (1); occipital (2); both temporals (1); both zygomatics (2); both maxillae (1); both palatines (1); mandible (1); left clavicle (1); left scapula (3); both ilia (2); both ischia (3); first two cervical vertebrae; three other cervical vertebrae; nine thoracic vertebrae; four lumbar vertebrae; rib fragments, proximal (2), middle (2), and distal (1) thirds and distal epiphysis (2) of the left humerus; proximal epiphysis (2) and proximal (1) and middle (2) thirds and remainder (1) of the right humerus; proximal (2), middle (1), and distal (2) thirds of the left radius; diaphysis (1) and distal epiphysis (3) of the right radius; proximal (1), middle (1), and distal (2) thirds of the left ulna; diaphysis (1) of the right ulna; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the left femur; distal epiphysis (2) and remainder (1) of the right femur; proximal (2), middle (1), and distal (2) thirds and distal epiphysis (2) of the left tibia; proximal epiphysis (2), diaphysis (1), and distal epiphysis (1) of the right tibia; left hand navicular; left triquetral; left capitate; left hamate; one metacarpal; left calcaneus; left talus; and three proximal foot phalanges.

Permanent teeth present, in occlusion, from the maxillae are the second molars, first molars, premolars, canines, and right lateral incisor, and from the mandible the left second molar, left first molar, left second premolar, first premolars, canines, and incisors.

The permanent third molars and mandibular right second molar were lost antemortem.

Carious lesions are on the interproximal surfaces of the following maxillary teeth: second molars (two lesions each), left first molar (two lesions), right first premolar, and left canine (two lesions), and the following mandibular teeth: left first molar, left second premolar (two lesions), first premolars, and right central incisor; cervical areas of the maxillary right first molar, maxillary right first premolar, and the following mandibular teeth: first premolars, right canine, and left lateral incisor; large surfaces of the maxillary second premolars, maxillary left first premolar, and mandibular left first and second molars. Alveolar abscesses in-

volving the buccal or labial channel are associated with the maxillary first molars, maxillary left premolars, and maxillary right second premolar.

One enamel defect is present, a linear horizontal groove on the maxillary right lateral incisor (3.8 mm).

Bone weathering corresponds to stage 4. Black staining is on the vertebrae, pelvis, right femur, right ulna, and right radius. Hair is present.

Cranial suture closure, dental attrition, and antemortem dental loss suggest an age at death of likely 30 to 35 years. Pelvic morphology and small bone size suggest female sex.

A metopic suture is on the frontal bone. The dentition displays extensive calculus formation, especially on the lingual surfaces of the mandibular teeth.

BURIAL 118.—FN: Nails and wood fragments were associated with this burial. One straight pin was recovered from the region of the cervical vertebrae.

The incomplete remains are of an adult male. Present are all the bones of the cranial vault (1); left (1) and right (2) zygomatics; both maxillae (1); both palatines (1); mandible (2); left (2) and right (1) clavicles; sternum (2); sacrum (1); left (3) and right (3) scapulae; left (2) and right (1) ilia; left (2) and right (1) ischia; right pubis (1); both patellae (1); first cervical vertebra; four other cervical vertebrae; 11 thoracic vertebrae; five lumbar vertebrae; one right first rib; five left and eight additional ribs; proximal epiphysis (2) and remainder (1) of the left humerus; right humerus (1); proximal epiphysis (1) and proximal (3), middle (1), and distal (2) thirds and distal epiphysis (2) of the left radius; right radius (1); proximal epiphysis (1) and proximal (1) and middle thirds (3) of the left ulna; proximal epiphysis (1) and proximal (1) and middle thirds (1) of the right ulna; proximal (1), middle (1), and distal (2) thirds and distal epiphysis (1) of the left femur; right femur (1); left tibia (1); distal third (2) and remainder (1) of the right tibia; diaphysis (1) and distal epiphysis (1) of the left fibula; middle (1) and distal (2) thirds and distal epiphysis (1) of the right fibula; right hand navicular; both triquetrals; right pisiform; right greater multangular; both lesser multangulars; right capitate; right hamate; right first metacarpal; both third metacarpals; right fourth metacarpal; four proximal hand phalanges; four distal hand phalanges; both calcanei; both tali; right cuboid; left first cuneiform; both second cuneiforms; one third cuneiform; both foot naviculars; both first metatarsals; both second metatarsals; one each of the third, fourth, and fifth metatarsals; two other metatarsals; and three proximal foot phalanges.

Permanent teeth present, in occlusion, are the central incisors; from the maxillae the third molars, second molars, left first molar, right second premolar, right first premolar, canines, and left lateral incisor; and from the mandible the third molars, right second molar, second premolars (right damaged), first premolars, canines (right damaged), and lateral incisors (right damaged).

The permanent maxillary right first molar, maxillary left premolars, mandibular left second molar, and mandibular first molars were lost antemortem.

Carious lesions are on the occlusal surfaces of the maxillary right first premolar, maxillary right canine, maxillary left inci-

sors, and mandibular right second premolar; roots of the maxillary left second and third molars, maxillary right first premolar, and mandibular right third molar; and large surfaces of the maxillary right second and third molars, maxillary right second premolar, and mandibular right second molar. Alveolar abscesses involving the buccal or labial surface are associated with the maxillary first and second molars, maxillary right second premolar, and mandibular right second molar.

Enamel defects consist of linear horizontal grooves in the mandibular right (2.5 mm) and left (2.5 mm) lateral incisors and mandibular left central incisor (2.5 mm).

Preservation of the remains corresponds to weathering stage 3 or 4. Black staining is on the bones of the feet, long bones, and right innominate.

Cranial suture closure, osteophytosis, dental attrition, antemortem tooth loss, and pelvic morphology suggest an age at death of 35 to 40 years. Pelvic morphology and large bone size suggest male sex.

The dentition displays four areas of likely pipewear. Roughly circular perforations measuring about 7 mm are in the maxillary left lateral incisor, mandibular left lateral incisor, mandibular and maxillary left canines, and first premolars (Figure 43). Smaller alterations are present on the occlusal margins of the central incisors.

Schmorl's depressions are on the thoracic and lumbar vertebrae. The inferior surfaces of the sternal ends of the clavicles display unusually robust bone formation.

BURIAL 119.—FN: The trench associated with feature 5 had disturbed the majority of this burial. The only apparent remnants of burial 119 are wood staining, nails, and other unidentified cof-

fin hardware on the west side and corner. No other artifacts were present.

No human remains were recovered.

BURIAL 120.—FN: A partial coffin outline and nails were associated with this burial. No other artifacts were present.

No human remains were recovered.

BURIAL 121.—FN: A coffin outline was marked by pink paint, apparently from the interior sides, floor, and lid of the coffin. Nails were the only other associated artifacts.

Only the deciduous maxillary right lateral incisor and mandibular right incisors, not in occlusion, of a young infant are present. The extent of formation of the teeth suggests an age at death of about 2 months.

BURIAL 122.—FN: Nails, wood fragments, and a metal handle fragment were the only artifacts associated with this burial.

The incomplete remains are of a child. Bones present are the frontal (3), both parietals (3), occipital (3), both maxillae (3), both palatines (2), mandible (2), and vertebrae fragments.

All deciduous teeth are present, in occlusion.

Permanent teeth present, not in occlusion, from the maxillae are the left incisors and left canine, and from the mandible the right first molar, right canine, and right incisors.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all the bones.

The extent of dental formation suggests an age at death of about 2.9 years.

BURIAL 123.—FN: A coffin outline and nails were in association with the human remains. No other artifacts were present.

The incomplete remains are of an adult female. Bones present are the frontal (1); left (1) and right (2) parietals (1); occipital



FIGURE 43.—Pipewear, burial 118.

(1); right temporal (1); right zygomatic (1); right maxilla (3); right palatine (2); right scapula (2); both ilia (3); vertebrae fragments; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the left humerus; proximal epiphysis (2) and proximal (1), middle (1) and distal (3) thirds of the right humerus; diaphysis (3) of the right radius; proximal epiphysis (2) and proximal (1) and middle thirds (2) of the right ulna; proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left femur; proximal epiphysis (2) and remainder (1) of the right femur; proximal epiphysis (3) and remainder (1) of the left tibia; proximal epiphysis (2) and remainder (1) of the right tibia; right calcaneus; both tali; right foot navicular; and three left and three right metatarsals.

Permanent teeth present, in occlusion, from the maxillae are the left first molar, left canine, and right lateral incisor, and from the mandible the left second premolar. The maxillary left premolars were lost antemortem.

Carious lesions are on the root and occlusal surface of the maxillary left first molar and interproximal surface of the mandibular left second premolar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all bones. Desiccated soft tissue is on the right sphenoid area; brown hair is also present. A dark brown stain is on the distal maxillary left first molar.

The extent of both cranial suture closure and dental attrition suggests an age at death of 30 to 35 years. The small size of the bones suggests female sex.

BURIAL 124.—FN: A coffin outline and plain and decorative nails were associated with this burial. Also recovered were two types of cloth: green cloth around the mandible and a brown "felt" in the pelvis and femoral region; and three types of buttons: large metal buttons along the right arm and small metal buttons and white glass buttons, both along the midline.

The incomplete remains are of an adult male (Figure 44). Bones present are the frontal (1); left (1) and right (2) parietals; occipital (1); left (1) and right (2) temporals; both zygomatics (1); both maxillae (1); both palatines (1); mandible (2); sacrum (3); left (2) and right (3) scapulae; both ilia (2); both patellae (2); first two cervical vertebrae; four other cervical vertebrae; seven thoracic vertebrae; three lumbar vertebrae; five left and three right ribs; proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left humerus; proximal epiphysis (2) and proximal (2), middle (2), and distal (1) thirds and distal epiphysis (2) of the right humerus; proximal epiphysis (3), proximal third (3), and remainder (2) of the left radius; proximal epiphysis (2) and proximal (3) and middle thirds (3) of the right radius; proximal epiphysis (2), diaphysis (1), and distal epiphysis (2) of the left ulna; proximal epiphysis (2) and proximal (2) and middle thirds (2) of the right ulna; proximal epiphyses (2) and remainder (1) of both femora; both tibiae (1); proximal epiphysis (2) and proximal (1) and middle thirds (2) of the left fibula; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the right fibula; all tarsal bones; all metatarsals; and one proximal right foot phalanx.

All permanent teeth are present, in occlusion.



FIGURE 44.—Burial 124, general view.

Carious lesions are on the interproximal surfaces of the maxillary right third molar and maxillary left second molar; cervical area of the maxillary right first molar; and large area of the maxillary right second molar and maxillary left first molar. An alveolar abscess involving the buccal or labial alveolar channel is associated with the maxillary left first molar.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the ribs, thoracic vertebrae, and glenoid fossa of the right scapula.

Cranial suture closure, dental attrition, and antemortem dental loss suggest an age at death of 28 to 35 years. Pelvic morphology and large bone size suggest male sex.

BURIAL 125.—FN: Most of the wooden coffin sides and floor was intact. No other artifacts were present.

No human remains were recovered.

BURIAL 126.—FN: The coffin perimeter was represented by nail alignment. Apparent wood was also present. A single earring on the right side of the cranium was the only other artifact recovered.

The incomplete remains of an adult female. Bones present are the cranium (1); mandible (1); left (3) and right (2) clavicles;

both scapulae (3); both ilia (2); right ischium (2); left (3) and right (2) pubes; three thoracic vertebrae; three left and four right ribs; distal epiphyses (2) and remainder (1) of the femora; proximal (2) and distal (2) epiphyses and diaphyses (1) of the tibiae; proximal (2), middle (1), and distal (2) thirds of the left fibula; right capitate; both hamates; all left metacarpals; second, third, and fourth right metacarpals; one proximal hand phalanx; left calcaneus; and left talus.

Permanent teeth present, in occlusion, are all maxillary teeth except the left central incisor, and from the mandible the second molars, first molars, first premolars, canines, and incisors.

Carious lesions are on the interproximal surfaces of the maxillary right first premolar, maxillary right canine, and mandibular left second molar and large surfaces of the maxillary right second premolar, maxillary left first premolar, maxillary left canine, and mandibular left first molar. Alveolar abscesses in the buccal or labial channel are associated with the following maxillary teeth: first molars, second premolars, left first premolar, and left central incisor.

Enamel defects consist of linear horizontal grooves on the maxillary right first premolar (two lesions, 4.6 mm, 5.3 mm), mandibular right canine (3.8 mm), mandibular lateral incisor (3.3 mm), and mandibular right central incisor (3.1 mm).

Preservation of the remains corresponds to weathering stage 3. Green staining is on the left mastoid area. Black staining is on many of the remains, especially the ramus portion of the mandible.

The extent of cranial suture closure and dental attrition suggest an age at death of 25 to 30 years. Pelvic morphology and small bone size suggest female sex.

Extensive calculus deposits are on the mandibular teeth in the lingual incisor area.

BURIAL 127.—FN: This burial had been disturbed. A variety of artifacts were present, including brick fragments (in the northern end), nails, buttons, and likely window glass. The coffin was sized for an adult.

Only one bone fragment and one tooth fragment, a mandibular permanent canine with slight occlusal wear, are present. No reliable estimate of age or sex can be made.

Preservation of the remains corresponds to weathering stage 5. Black deposits are present on the bone fragment.

BURIAL 128.—FN: The wooden coffin lid was collapsed on the skeleton, and the outline of the coffin was determinable. Nails were the only artifacts recovered.

The incomplete remains are of a child. Bones present are the bones of the cranial vault (1); both zygomatics (2); maxillae (1); palatines (1); mandible (2); sacrum (3); left scapula (3); left (2) and right (1) ilia; left (1) and right (2) ischia; left pubis (1); two cervical vertebrae; seven thoracic vertebrae; one right first rib; five left and six right other ribs; proximal (1), middle (1), and distal (2) thirds of the left humerus; proximal (3), middle (1), and distal (1) thirds of the right humerus; proximal (2), middle (1), and distal (1) thirds of the left radius; proximal (2), middle (1), and distal (2) thirds of the right radius; proximal (1), middle (1), and distal (2) thirds of the ulnae; both femora (1); left tibia (1)

minus the distal epiphysis; right tibia (1); diaphysis (1) of the right fibula; one each of the first four metacarpals; two fifth metacarpals; three proximal hand phalanges; both calcanei; and right talus.

All deciduous teeth are present, in occlusion.

Permanent teeth present, not in occlusion, from the maxillae are the first molars, left canine, left lateral incisor, and central incisors, and from the mandible the first molars.

In the deciduous dentition, carious lesions are on the occlusal surfaces of the maxillary right first molar and mandibular right second molar and interproximal surface of the maxillary left central incisor.

Preservation of the remains corresponds to weathering stage 2. The cranium displays some crystal formation.

The extent of dental formation suggests an age at death of about 3 years.

BURIAL 129.—FN: Nails were in association with this burial. No other artifacts were present. The size of the grave outline suggests the burial was of an infant.

No human remains were recovered.

BURIAL 130.—FN: Nails and wood were associated with the human remains. A coin was recovered in the northwest area of the burial.

Only incompletely formed teeth of an infant are present. Preservation corresponds to weathering stage 5. The extent of dental calcification suggests the burial was of a newborn.

BURIAL 131.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

The incomplete remains are of a fetus. Bones present are the occipital (3), both temporals (3), and mandible (3).

Bone weathering corresponds to stage 4.

The extent of skeletal development suggests a fetal age at death of about 7.5 lunar months.

BURIAL 132.—FN: A coffin outline and nails were associated with this burial. One straight pin beneath the skull was recovered.

The incomplete remains are of an adult male. Bones present are the frontal (2); both parietals (2); occipital (2); left (2) and right (1) temporals; right zygomatic (2); left (3) and right (1) maxillae; both palatines (1); mandible (2); right clavicle (3); sacrum (3); left (3) and right (2) scapulae; left ilium (2); both ischia (2); right patella (1); one cervical vertebra; seven thoracic vertebrae; one lumbar vertebra; two left and one right rib; proximal epiphysis (2) and remainder (1) of the left humerus; proximal epiphysis (2), proximal third (2), and remainder (1) of the right humerus; proximal epiphysis (2) and remainder (1) of the left radius; right radius (1); proximal epiphysis (2) and remainder (1) of the left ulna; right ulna (1); both femora (1); both tibiae (1); left fibula (1); diaphysis (1) of the right fibula; right carpal bones; right second metacarpal; both calcanei; both tali; right cuboid; both second cuneiforms; both foot naviculars; and right first, second, third, and fifth metatarsals.

Permanent teeth present, in occlusion, from the maxillae are the right third molar, right second molar, first molars, right pre-

molars, right canine, and right incisors, and from the mandible all teeth except the left first premolar and the canines.

One carious lesion is on the occlusal surface of the mandibular left second molar.

Preservation of the remains corresponds to weathering stage 2.

The extent of dental attrition, cranial suture closure, and arthritic changes suggest an age at death of 25 to 30 years. Pelvic morphology and bone size suggest male sex.

BURIAL 133.—FN: A coffin outline was present. No artifacts were recovered.

Two petrous portions of the temporals and one other cranial fragment from a newborn are present.

Preservation of the remains corresponds to weathering stage 5.

The extent of bone development suggests the age at death.

BURIAL 134.—FN: A partial coffin outline was associated with this burial. Artifacts included nails and wood with traces of pink pigment adhering to sections. Two areas of dark green coloration were noted on each side (west and east) of the middle of the coffin.

Only two petrous portions of temporal bones and teeth of an infant are present.

Deciduous teeth present, not in occlusion, are the maxillary left central incisor, mandibular molars, and mandibular right canine.

Permanent teeth present, not in occlusion, are the mandibular right second molar, mandibular left first molar, and mandibular right canine.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of about 8 months.

BURIAL 135.—FN: A coffin outline, nails, and tacks were associated with this burial. Wood was on the coffin floor. No other artifacts were recovered.

Remains are the deciduous teeth, not in occlusion, of an infant. Present are the second molars, canines, maxillary left first molar, maxillary right lateral incisor, mandibular first molars, and mandibular left central incisor.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of about 8 months.

BURIAL 136.—FN: A coffin outline and nails were associated with this burial. No other artifacts were recovered.

The frontal (3), occipital (3), petrous portion of a right temporal (3), and one fragment from the cranial vault of an infant are present.

Preservation of the remains corresponds to weathering stage 4.

Development of the bones suggests they are from a newborn.

BURIAL 137.—FN: A coffin outline and nails were associated with this burial. Although fragmentary, the coffin floor was also present. No other artifacts were present.

The frontal (3) and right temporal (3) of an infant are present.

Preservation of the remains corresponds to weathering stage 4.

The extent of bone development suggests an age at death of newborn to 6 months.

BURIAL 138.—FN: Plain and ornamental nails were in association with this burial. The ornamental nails were decorated with a diamond-shaped plate around their heads. Wood fragments, glass buttons, a green blue stain (possibly a cloth remnant), and a pair of shoes recovered at the south to southeast end of the coffin were also associated with this burial.

The occipital (1) and teeth of an infant are present. Deciduous teeth, in occlusion, are the molars, maxillary right canine, maxillary right lateral incisor, mandibular canines, and mandibular right lateral incisor. Permanent teeth, not in occlusion, are the maxillary first molars, maxillary right central incisor, mandibular left lateral incisor and mandibular central incisors.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 1.5 years.

BURIAL 139.—FN: A coffin outline containing areas of pink staining was associated with this burial. No other artifacts were present.

The incomplete remains are of an infant. Bones present are the occipital (2); both temporals (2); mandible (2); other cranium fragments; and proximal (2), middle (1), and distal (2) thirds of a femur.

Deciduous teeth present, in occlusion, are the molars, maxillary lateral incisors, mandibular central incisors, and mandibular right lateral incisor. Those not in occlusion are the maxillary left canine and mandibular canines.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 1.8 years.

BURIAL 140.—FN: A coffin outline and nails were associated with this burial. An apparent copper straight pin was recovered from the cervical vertebral region.

The incomplete remains are of an infant. Bones present are the occipital (2), left (3) and right (2) temporals, left zygomatic (2), mandible (3), five cervical vertebrae, and diaphysis (3) of a femur.

Deciduous teeth present, in occlusion, from the maxillae are the right second molar, left first molar, and left canine, and from the mandible the second molars.

Permanent teeth present, not in occlusion, are the maxillary left central incisor and the mandibular first molars and incisors.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 1.8 years.

BURIAL 141.—FN: Wood fragments were in association with this burial, with the largest section of wood found on the western side. Nails were recovered throughout the burial. Other associated artifacts were a cloth fragment recovered at the head of the coffin and an apparent copper straight pin found at the proximal end of the left femur.

The incomplete remains are of an infant. Bones present are an ilium (2) and a metacarpal from a more mature individual.

One deciduous maxillary right second molar, not in occlusion, and the occlusal tip of a canine are present.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 3 months.

BURIAL 142.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

The incomplete remains are of a newborn. Bones present are both temporals (3), both zygomatics (1), and one malleus (1) of the inner ear.

Preservation of the remains corresponds to weathering stage 4.

The extent of bone development suggests the age at death.

BURIAL 143.—FN: A coffin outline and nails were associated with the human remains. No other artifacts were present.

The incomplete remains are of an infant. Bones present are the occipital (3), both temporals (3), and other cranium fragments.

Deciduous teeth present, in occlusion, from the maxillae are the right molars, right canine, and left lateral incisor, and from the mandible the molars, right canine, and lateral incisors.

Permanent teeth present, not in occlusion, are the first molars, central incisors, and maxillary right lateral incisor.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 2 years.

BURIAL 144.—FN: A coffin outline and nails were in association with this burial; pink paint was found on the interior sides and bottom of the coffin. A small glazed redware sherd was also recovered.

A fragmentary petrous portion of a temporal bone and teeth of an infant are present. Deciduous teeth present, not in occlusion, are the molars; from the maxillae the left canine, lateral incisors, and right central incisor; and from the mandible the right canine and right lateral incisor.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth and temporal.

The extent of dental formation suggests an age at death of about 10 months.

BURIAL 145.—FN: A coffin outline, wood fragments, and nails were associated with the human remains. Traces of pink paint were on the coffin walls, and three straight pins were recovered in the cervical vertebral region. Another grave had disturbed the northern corner of this burial.

The incomplete remains are of a child. Bones present are a petrous portion of a temporal and vertebrae fragments.

All deciduous teeth are present, in occlusion, except the mandibular left lateral incisor.

Permanent teeth present, not in occlusion, are the first molars, canines, and incisors.

Interproximal carious lesions are in all of the deciduous maxillary incisors, with two lesions in each of the central incisors.

One enamel defect is present, a pit in the left mandibular canine (3.5 mm).

Discrete-boundary, brown hypocalcification defects are in the four maxillary incisors at locations suggesting they formed at about the time of birth.

Preservation of the remains corresponds to weathering stage 5. Green staining is on the vertebrae fragments. Black staining is on all bone fragments.

The extent of dental formation suggests an age at death of about 2.9 years.

BURIAL 146.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

The incomplete remains are of a child. Bones present are the frontal (3), both parietals (3), occipital (3), and left (3) and right (2) temporals.

All deciduous teeth are present, in occlusion, except the maxillary left lateral incisor and mandibular left central incisor.

Permanent teeth present, not in occlusion, are the first molars, canines, and incisors except for the maxillary right lateral and mandibular left central incisors.

Two carious lesions are on the occlusal surface of the deciduous right first mandibular molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all bones and most teeth.

The extent of dental formation suggests an age at death of 2.5 to 3 years.

BURIAL 147.—FN: Coffin nails were associated with this burial. Portions of a leather garment with copper or brass eyelets were recovered from either side of the human remains in the humerus region. On the left side of the humerus, wood fragments of the coffin floor had adhered to the garment.

The incomplete remains are of a child. Bones present are the frontal (1); both parietals (2); occipital (2); left (2) and right (3) temporal; both zygomatics (1); both maxillae (1); both palatines (1); mandible (2); first and second cervical vertebrae; two other cervical vertebrae; two thoracic vertebrae; one lumbar vertebra; one left and two right ribs; proximal (2), middle (1), and distal (2) thirds of the right humerus and the right femur; proximal (2), middle (1), and distal (1) thirds of the right tibia; diaphysis (1) of the right fibula; right calcaneus; both tali; and right foot navicular.

Deciduous teeth present, in occlusion, are the maxillary left first molar and left canine and the mandibular molars and canines.

Permanent teeth present in occlusion are the first molars, incisors, and mandibular right premolars. Those not in occlusion are the second molars, right canines, and maxillary premolars.

In the deciduous dentition, carious lesions are on the occlusal surfaces of the mandibular left second molar (four lesions) and mandibular right first molar and the interproximal surfaces of the maxillary left first molar, mandibular molars (two lesions on the left first molar), and mandibular canines.

In the permanent dentition, two carious lesions are on the occlusal surface of the mandibular left first molar.

Enamel defects in the permanent dentition consist of linear horizontal grooves on the maxillary right (two defects, 3.5 mm, 2.4 mm) and left (3.6 mm) central incisors and the following mandibular teeth: right canine (two defects, 4.0 mm, 2.7 mm), right lateral incisor (two defects, 3.4 mm, 2.9 mm), and right (two defects, 3.2 mm, 2.4 mm) and left (~2.5 mm) central incisors.

Preservation of the remains corresponds to weathering stage 3.

Both maxillary lateral incisors are peg shaped (Figure 45).

The extent of dental formation suggests an age at death of 6 to 8 years.



FIGURE 45.—Peg-shaped maxillary lateral incisor, burial 147.

BURIAL 148.—FN: Nails and wood fragments were in association with this burial. Evidence of pink paint was on sections of the wood, which appeared to be the coffin's interior sides and the exterior of the lid.

The petrous portion of a temporal and teeth of an infant are present. Deciduous teeth present, not in occlusion, are the maxillary first molars, maxillary incisors, mandibular lateral incisors, and mandibular left central incisor.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth.

The extent of dental formation suggests an age at death of about 4 months.

BURIAL 149.—FN: A backhoe may have disturbed this burial. Only the northernmost section was present, with associated nails.

No human remains were recovered.

BURIAL 150.—FN: Nails were the only associated artifacts within this burial. The coffin was sized for a newborn.

No human remains were recovered.

BURIAL 151.—FN: Staining from coffin wood (no wood fragments were found) and nails were associated with this burial. There were also traces of an apparent pink pigment. Coffin size suggests the burial was of a newborn.

No human remains were recovered.

BURIAL 152.—FN: A coffin outline and nails were associated with this burial. A black material, possibly leather or cloth, was recovered from the right side of the skeleton.

The incomplete remains are of a child. Bones present are the occipital (3), left (2) and right (3) temporals, mandible (3), first cervical vertebrae, and two thoracic vertebrae.

Deciduous teeth present, in occlusion, are the second molars, maxillary right first molar, maxillary left canine, and mandibular canines.

Permanent teeth present, not in occlusion, are the first and second molars, first premolars, and central incisors; from the maxillae the right second premolar and canines; and from the mandible the right second premolar, right canine, and lateral incisors.

Carious lesions in the deciduous teeth are on the occlusal surfaces of the maxillary right second molar (two lesions) and mandibular right second molar (three lesions), interproximal surface of the mandibular right canine, and large surface of the mandibular left second molar.

Enamel defects in the permanent dentition consist of linear horizontal grooves in the following maxillary teeth: left (1.9 mm) and right (2.1 mm) first molars, left (two defects, 3.3 mm, 5.3 mm) and right (two defects, 3.1 mm, 5.1 mm) canines, and left (two defects, 2.0 mm, 5.6 mm) and right (two defects, 2.3 mm, 4.1 mm) central incisors, and in the following mandibular teeth: left (two lesions, 1.8 mm, and 0.7 mm) and right (1.3 mm) first molars, left first premolar (two lesions, n/a), and right canine (n/a). Diffuse boundary hypocalcification defects are on the maxillary left (3.2 mm) and right (2.9 mm) canines and maxillary left (1.5 mm) and right (4.0 mm) central incisors.

Preservation of the remains corresponds to weathering stage 4.

The extent of tooth formation suggests an age at death of 4 to 5 years.

Developmental defects in the form of notches on the lateral labial crown surface are on the permanent left maxillary central incisor.

BURIAL 153.—FN: Nails and pink paint were associated with this burial. The paint appeared to be on the outside of the coffin and helped define the coffin's edges.

The remains are bone fragments and deciduous teeth, not in occlusion, of an infant. Teeth present are the maxillary first molars, maxillary canines, mandibular second molars, and mandibular left first molar.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all bone fragments.

The extent of dental formation suggests an age at death of about 6 months.

BURIAL 154.—FN: A coffin outline and nails were associated with this burial. The nail heads and margins of the coffin were painted red.

The incomplete remains are of a child. Bones present are the left (2) and right (3) temporals, both maxillae (2), both palatines (2), mandible (3), three cervical vertebrae, and long-bone fragments.

Deciduous teeth present, in occlusion, are the maxillary first molars, maxillary left central incisor, mandibular second molars, and mandibular left canine.

Permanent teeth present in occlusion are the first molars, maxillary left lateral incisor, mandibular lateral incisors, and the central incisors. Permanent teeth not in occlusion are the second molars, maxillary right second premolar, first premolars, and canines.

Cariou lesions in deciduous teeth are on the interproximal surfaces of the maxillary left (two lesions) and right first molars.

Enamel defects in the permanent dentition consist of linear horizontal grooves on the maxillary right first molar (1.4 mm), maxillary left first premolar (3.9 mm), maxillary left (two defects, 3.8 mm, 5.9 mm) and right (6.3 mm) canines, and mandibular left (1.4 mm) and right (1.0 mm) first molars.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 6.5 to 7.8 years.

BURIAL 155.—FN: This burial had been heavily disturbed, and the only artifacts recovered were wood fragments (from under the skull) and a burned cut nail.

The incomplete remains are of an adult male. Bones present are the frontal (1); both parietals (1); occipital (2); both temporals (1); proximal (2), middle (1), and distal (2) thirds of the left humerus; middle (3) and distal (2) thirds of the right humerus; proximal (2), middle (1), and distal (2) thirds of the right radius; proximal epiphysis (3) and proximal third (2) of the right ulna; proximal epiphysis (3) and proximal (2), middle (2), and distal (1) thirds of the left femur; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds of the right femur; and proximal (2), middle (1), and distal (2) thirds of the left tibia.

Some teeth of a 3-year-old are also present but do not relate to the individual represented by the bones.

Preservation of the remains corresponds to weathering stage 3.

The extent of cranial suture closure suggests an age at death of 28 to 35 years. Very large mastoid processes of the temporal bones and other size-related factors indicate male sex.

The left tibia displays evidence of a crushing fracture of the proximal end with subsequent infection and cloaca formation. The fractures are well remodeled, indicating they were sustained long before death. The most distal extension of the fracture is on the medial surface. A small cloaca, 8 mm in diameter, is at the fracture site on the inferior medial surface. A larger cloaca, 9 mm in diameter, is on the posterior surface. Radiographs reveal disruption of the original cortex, with extensive, remodeled new-bone formation over the affected area.

This tibia also displays a smooth-walled area of remodeled periosteal new-bone formation on the medial surface, just superior to the midline. Radiographs revealed an area of thickened cortex measuring about 13 × 30 mm.

The left distal femur shows remodeled new-bone formation on the medial epicondyle.

BURIAL 156.—FN: A coffin outline and nails were associated with this burial; one recovered nail had a green and yellow coating. A wood fragment was found in the grave fill. No other arti-

facts were present. The size of the coffin suggests the burial was of an infant or small child.

No human remains were recovered.

BURIAL 157.—FN: A coffin outline and nails were associated with this burial. Artifacts recovered include one ornamental nail from the upper northwest side of the coffin and a fabric fragment from the southern end of the coffin. The size of the coffin suggests the burial was of a newborn.

No human remains were recovered.

BURIAL 158.—FN: A coffin outline and nails were associated with this burial. Three straight pins, one beneath the cranium and two beneath the mandible, were also recovered. Pink to red paint was associated with the straight pin beneath the skull. No other artifacts were present.

The incomplete remains are of an infant. Bones present are both temporals (3), mandible (3), sacrum (3), five cervical vertebrae, eight thoracic vertebrae, four lumbar vertebrae, both first ribs, and six left and six right other ribs.

Deciduous teeth present, not in occlusion, are the maxillary right incisors, and from the mandible the right first molar, left canine, left lateral incisor, and right central incisor.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 2 months.

BURIAL 159.—FN: A coffin outline and nails were in association with this burial. A copper straight pin was recovered from beneath the cranium.

The very incomplete remains are of a young infant. Bones present are the occipital (3) and one thoracic vertebral arch.

Preservation of the remains corresponds to weathering stage 4.

The size of the bones suggests an age at death of about 2 to 3 months.

BURIAL 160.—FN: Nails, some intact, and wood were in association with this burial. No other artifacts were recovered. The coffin was sized for a newborn.

Only small bone fragments are present.

Preservation of the remains corresponds to weathering stage 5.

No reliable estimate of age or sex can be made.

BURIAL 161.—FN: Nails and a single straight pin with an attached fragment of cloth recovered from the region of the cranium were the only associated artifacts.

The incomplete remains are of a young child. Bones present are the frontal (3), both temporals (3), both maxillae (1), both palatines (1), mandible (2), first cervical vertebra, one other cervical vertebra, and five thoracic vertebrae.

All deciduous teeth are present, in occlusion, except the mandibular left lateral and right central incisors.

Permanent teeth present, not in occlusion, from the maxillae are the right first molar and left central incisor, and from the mandible the first molars, left canine, left lateral incisor, and central incisors.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of 2.5 to 2.8 years.

BURIAL 162.—FN: A coffin outline and nails were in association with this burial. Wood fragments were found concentrated at the southern end of the coffin. No other artifacts were recovered.

One petrous portion of a temporal and teeth of an infant are present. Deciduous teeth, not in occlusion, are the first molars and maxillary right central incisor.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of about 4 to 5 months.

BURIAL 163.—FN: A coffin outline and one fragment of wood were in association with the human remains. No other artifacts were present.

The incomplete remains are of an adult, likely female. Bones present are the frontal (2); left (3) and right (2) parietals; left (3) and right (1) temporals; left (2) and right (1) maxillae; both palatines (1); mandible (2); left scapula (3); first two cervical vertebrae; distal thirds of the left (1) and right (2) humerus; proximal (2) and middle (1) thirds of the left radius; proximal epiphysis (2) and proximal (1) and middle (2) thirds of the left ulna; proximal third (2) of the right ulna; proximal (3), middle (1), and distal (3) thirds of the left femur; and proximal (2), middle (1), and distal (2) thirds of the right femur.

Permanent teeth present, in occlusion, are the left third molars; from the maxillae the right third molar (damaged), second molars, right premolars (damaged), and right lateral incisor (damaged); and from the mandible the right first molar, all premolars, canines (right damaged), and incisors.

Permanent teeth lost antemortem were the maxillary first molars and mandibular first and second molars.

Carious lesions are on the occlusal surfaces of the maxillary second molars (two lesions each) and mandibular left first premolar; interproximal surfaces of the mandibular right second premolar and mandibular right first premolar (two lesions); smooth surface of the mandibular right first molar; and large surface of the maxillary right third molar, maxillary right premolars, maxillary right lateral incisor, mandibular left first premolar, and mandibular right canine. Alveolar abscesses in the buccal or labial alveolar channel are associated with the maxillary right third molar, maxillary right premolars, maxillary right central incisor, mandibular left first premolar, and mandibular right canine.

Preservation of the remains corresponds to weathering stage 3.

Cranial suture closure, dental attrition, and dental loss suggest an age at death of 25 to 35 years. Likely female sex is suggested by the size of the bones.

BURIAL 164.—FN: Nails were in association with this burial. Bright yellow paint was evident at the midshaft of the nails, being possibly the interior color of the coffin. An apparent copper straight pin was recovered from the region of the cervical vertebrae. Light brown hair was also present.

The incomplete remains are of an adult male. Bones present are the frontal (1); both parietals (1); occipital (1); left (1) and right (2) temporals; maxilla (3), side undetermined; mandible (1); left (1) and right (2) clavicles; left scapula (3); left (1) and right (2) ilia; first two cervical vertebrae; four other cervical vertebrae; eight thoracic vertebrae; five left and three right ribs; left

humerus (1); proximal (2), middle (1), and distal (2) thirds and distal epiphysis (2) of the right humerus; left radius (1); proximal epiphysis (2) and proximal (1), middle (2), and distal (2) thirds and distal epiphysis (2) of the right radius; left ulna (1); proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds of the right ulna; proximal epiphysis (1), diaphysis (1), and distal epiphysis (3) of the left femur; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the right femur; right fourth metacarpal; left fifth metacarpal; one proximal hand phalanx; two tali; two first metatarsals; and one proximal end of another metatarsal.

Permanent teeth present, in occlusion, from the maxillae are the left second molar, first molars (damaged), right second premolar, and right canine, and from the mandible the right third molar, second molars, second premolars, left first premolar, canines, and incisors.

Permanent teeth lost antemortem were the mandibular left third molar, mandibular right first molar, and mandibular right first premolar.

Carious lesions are on the interproximal surfaces of the mandibular right second molar and mandibular left second premolar; cervical areas of the maxillary right second premolar, maxillary right canine, and the following mandibular teeth: right second premolar, left first premolar, canines, and incisors; and large surfaces of the maxillary left second molar and maxillary right first molar.

Preservation of the remains corresponds to weathering stage 3. Black stains are on most bones.

The extent of epiphyseal closure, dental attrition, dental loss, cranial suture closure, and arthritic change suggest an age at death of 22 to 26 years. The size of the bones suggests male sex.

An unusual bony prominence is on the anterior superior surface of the left ulna, near the proximal end.

BURIAL 165.—FN: A coffin outline, wood fragments, and nails were associated with the human remains. A straight pin was recovered from the upper vertebral region.

The incomplete remains are of a young child. Bones present are the frontal (3), left (3) and right (2) parietals, occipital (2), both temporals (2), and left zygomatic.

Deciduous teeth present, in occlusion, are the molars, left canines, and left mandibular lateral incisor.

Permanent teeth present, not in occlusion, are the first molars, canines (minus the mandibular right), and incisors.

Carious lesions are on the occlusal surfaces of the deciduous mandibular first molars.

The extent of dental calcification suggests an age at death of 2 to 2.5 years.

BURIAL 166.—FN: Coffin nails and wood were in association with this burial. No other artifacts were present.

The incomplete remains are of an infant. Deciduous teeth present, in occlusion, are the molars, maxillary left canine, mandibular right canine, and mandibular left lateral incisor.

Permanent teeth present, not in occlusion, are the maxillary two first molars and maxillary left central incisor.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the remains.

The extent of dental formation suggests an age at death of about 1.4 years.

BURIAL 167.—FN: Coffin nails and a straight pin recovered from the right clavicle were the only associated artifacts with the human remains. A large quantity of long brown hair was present, with some strands at least 230 mm long.

The incomplete remains are of an adolescent, possibly male. Bones present are the frontal (2); both parietals (2); occipital (2); both temporals (1); both zygomatics (1); both maxillae (1); both palatines (1); mandible (1); right clavicle (2); both scapulae (1); both ilia (2); second cervical vertebra (1); four other cervical vertebrae (4); six thoracic vertebrae; rib fragments; left humerus (1); proximal epiphysis (2) and remainder (1) of the right humerus; proximal (2), middle (1), and distal (2) thirds of the left radius; proximal epiphysis (2) and proximal (1) and middle thirds (2) of the right radius; proximal epiphyses (2) and proximal (1) and middle thirds (3) of the ulnae; proximal epiphysis (2), diaphysis (1), and distal epiphysis (1) of the left femur; proximal epiphysis (2), diaphysis (1), and distal epiphysis (2) of the right femur; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the left tibia; proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the right tibia; proximal (3), middle (2), and distal (2) thirds of the left fibula; three left and two right metacarpals; five proximal hand phalanges; three middle hand phalanges; one distal hand phalanx; both calcanei; and both tali.

All permanent teeth are present, in occlusion, except the third molars.

Cariou lesions are on the occlusal surface of the mandibular right first molar and interproximal surfaces of the mandibular first molars and mandibular right second premolar.

Enamel defects consist of linear horizontal grooves on the maxillary right first molar (2.9 mm) and the following mandibular teeth: left (1.6 mm) and right (2.1 mm) first molars, left (two defects, 3.5 mm, 6.4 mm) and right (two defects, 5.2 mm, 6.7 mm) canines, left (3.7 mm) and right (4.2 mm) lateral incisors, and left (two defects, 3.7 mm, 5.6 mm) and right (two defects, 3.7 mm, 5.0 mm) central incisors.

Preservation of the remains corresponds to weathering stage 2.

The extent of dental formation suggests an age at death of 15 to 16 years. The large mastoid processes and supraorbital ridges suggest male sex, but female sex cannot be ruled out.

BURIAL 168.—FN: A coffin outline and nails were the only associated artifacts. The size of the coffin outline suggests the burial was of a newborn.

No human remains were recovered.

BURIAL 169.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present. Coffin size suggests the burial was of an adolescent or small adult.

No remains were submitted for analysis, although some were recovered.

BURIAL 170.—FN: Wood stains representing the coffin sides and floor were present. Nails were the only other associated arti-

facts recovered. Coffin size suggests the burial was of a young child.

No human remains were recovered.

BURIAL 171.—FN: Coffin nails and a wood fragment were in association with this burial. Pink staining was around the perimeter of the coffin. Field analysis suggested the individual was 8 to 10 years of age.

No human remains were recovered.

BURIAL 172.—FN: Nails and wood were associated with this burial, and two metal hooks were recovered. No other artifacts were present. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 173.—FN: A coffin outline, nails, wood fragments, and three copper pins were associated with this burial. Portions of the wooden floor were recovered with adhering pink paint on its apparent interior surface. The coffin was sized for a newborn.

No human remains were recovered.

BURIAL 174.—FN: Segments of coffin wood with exterior rickrack along the coffin's sides and both plain and ornamental nails were in association with this burial. Six of the ornamental nails were found in the corners of the coffin. A coin was recovered at the middle of the coffin's eastern side. The coffin was sized for a very young child.

No human remains were recovered.

BURIAL 175.—FN: A coffin outline and nails were associated with this burial. An apparent copper pin was recovered near the upper cranial region.

The incomplete remains are of a child. Bones present are the frontal (2), both parietals (3), left (1) and right (2) temporals, left maxilla (3), mandible (2), left scapula (3), proximal epiphysis (3) and middle third (3) of the left femur, and middle third (3) of a right femur.

Deciduous teeth present, in occlusion, are the maxillary molars, maxillary canines, and from the mandible the second molars, left first molar, and left canine.

Permanent teeth present, not in occlusion, are all maxillary teeth except the third molars and the following mandibular teeth: right second molar, both first molars, right premolars, right canine, and incisors.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 4.8 to 5.3 years.

BURIAL 176.—FN: Nails, tacks, and wood fragments were in association with this burial. A straight pin, possibly copper, was recovered from beneath the mandible.

The incomplete remains are of a young child. Bones present are the frontal (3), occipital (3), both temporals (2), mandible (3), one ilium (3), proximal epiphysis (2) and proximal third (2) of the left ulna, and proximal third (3) of the right ulna.

Deciduous teeth present, in occlusion, from the maxillae are the first molars, canines, and right central incisor, and from the mandible the right first molar, canines, and incisors. The deciduous second molars are present but are not in occlusion.

One smooth-surface carious lesion is on the labial surface of the right maxillary deciduous central incisor. The lesion is associated with a linear hypoplastic defect (Figure 46).

Preservation of the remains corresponds to weathering stage 4. Green staining is on the vertebrae. Black staining is on all remains.

The extent of dental formation suggests an age at death of about 2.3 years.

BURIAL 177.—FN: This burial had been disturbed. Nails and a historic ceramic were the only associated artifacts recovered.

Cranium fragments and teeth of a 9-month-old infant are present. Deciduous teeth, not in occlusion, from the maxillae are the molars, left canine, right lateral incisor, and left central incisor, and from the mandible the first molars.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth.

BURIAL 178.—FN: This burial had been disturbed. Nails and a historic ceramic were the only associated artifacts recovered.

The incomplete remains are of an adult male. Bones present are the frontal (1); both parietals (2); occipital (2); both temporals (1); both zygomatics (1); both maxillae (1); both palatines

(1); mandible (2); left clavicle (2); left scapula (3); both ilia (3); both ischia (3); all cervical vertebrae; one thoracic vertebra; one right first rib; one other right rib; one left rib; proximal epiphysis (2) and proximal (2), middle (1), and distal thirds of the left humerus; diaphysis (2) of the right humerus; proximal (2), middle (1), and distal (2) thirds of the left radius; middle third (2) of the right radius; proximal (1), middle (2), and distal (2) thirds of the left ulna; diaphysis (2) of the right ulna; proximal epiphyses (2) and middle thirds (3) of the femora; diaphysis (3) of the left tibia; and one metacarpal.

All permanent teeth are present, in occlusion, except the maxillary left premolars and first molar, lost antemortem. The maxillary left canine and right second premolar are damaged.

Carious lesions are on the occlusal surface of the mandibular right third molar; cervical area of the maxillary right first premolar; roots of the mandibular first molar, mandibular first premolar, and mandibular right canine; and large surfaces of the maxillary right second premolar, maxillary left canine, and mandibular left third molar. An alveolar abscess in the buccal or labial alveolar channel is in association with the maxillary right second premolar.

Preservation of the remains corresponds to weathering stage 2.

Cranial suture closure, dental attrition, and antemortem dental loss suggest an age at death of 25 to 35 years. The large size of the bones suggests male sex.

BURIAL 179.—FN: Nails were the only associated artifacts.

The incomplete remains are of an infant. Bones present are the frontal (3), occipital (3), and both temporals (3).

Deciduous teeth present, not in occlusion, from the maxillae are the right first molar, left lateral incisor, and right incisors, and from the mandible the right first molar, right canine, and right central incisor.

Preservation of the remains corresponds to weathering stage 5. Apparent rust is on the maxillary right first molar.

The extent of dental formation suggests an age at death of about 4 to 5 months.

BURIAL 180.—FN: A coffin outline and nails were in association with this burial, and a straight pin was recovered from the cervical region. Pink paint found in the burial fill may indicate the coffin's exterior color. The coffin was sized for an infant.

Only very small cranium fragments are present. Preservation of the remains corresponds to weathering stage 5.

BURIAL 181.—FN: A coffin outline, wood fragments, and nails were in association with the human remains. An apparent copper clasp was recovered from the cranial region.

The temporal bones (3) and three deciduous mandibular teeth, the left lateral incisor and right incisors, not in occlusion, are present. Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests the remains are of a newborn infant.

BURIAL 182.—FN: Nails were recovered in association with this burial. Dark pink paint was apparent on the interior and exterior of the coffin walls and floor. No other artifacts were present. The coffin was sized for an adult.



FIGURE 46.—Carious lesion associated with hypoplasia, burial 176.

No remains were submitted for analysis.

BURIAL 183.—FN: A partial coffin outline and nails were associated with this burial. A straight pin was recovered from the midsection of the right side of the skeleton. A sample of pink paint was taken, and the exterior of the coffin appeared to be painted red.

The incomplete remains are of an adult, likely female. Bones present are the frontal (2); left (1) and right (2) parietals; right ilium (2); right patella (1); proximal (3), middle (1), and distal (1) thirds and distal epiphysis (2) of the right humerus; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the right radius; proximal epiphysis (3) and proximal (1), middle (1), and distal (3) thirds of the right ulna; right femur (1); proximal epiphysis and proximal (1), middle (1), and distal (2) thirds of the left tibia; diaphysis (1) and distal epiphysis (2) of the right tibia; middle (1) and distal (1) thirds of the left fibula; middle (2) and distal (1) thirds and distal epiphysis (1) of the right fibula; right third, fourth, and fifth metacarpals; both calcanei; both tali; right third cuneiform; right foot navicular; both first, third, fourth, and fifth metatarsals; right second metatarsal; one proximal foot phalanx; and unidentifiable bone fragments.

Preservation of the remains corresponds to weathering stage 3.

The extent of cranial suture closure suggests an age at death of more than 40 years. Small bone size suggests female sex.

The right femur displays a healed complete fracture of the midshaft (Figure 47). The proximal and distal segments overlap between the posterior surface of the proximal fragment and the anterior side of the distal segment. The fracture site is well remodeled, with massive bone deposits there. The approximately 100 mm overlap of the segments resulted in a corresponding shortening of the right leg. The segments are also slightly angled laterally, producing a lateral extension of the bone at that site.

The right tibia displays slightly abnormal periosteal bone formation on the posterior surface of the superior one-fifth of the diaphysis. A circular perforation about 4 mm in diameter is on the distal articular surface. A sclerotic margin surrounds the perforation.

The left tibia presents fusion of the tibia and fibula with extensive well-remodeled bone. An irregular perforation about 4 mm

in diameter is on the distal articular surface. Radiographs revealed irregularity in both the tibial and fibular diaphyses at the sites of union on the distal quarters of the bones. The characteristics of the alterations suggest a crushing type of trauma followed by infection and healing.

BURIAL 184.—FN: Nails and two copper hooks and eyes recovered from the thoracic region were the only associated artifacts.

Only the deciduous, maxillary left central incisor, not in occlusion, of a newborn infant is present. Its preservation corresponds to weathering stage 4. Black staining is on the tooth.

BURIAL 185.—FN: A coffin outline and nails were in association with this burial. Pink paint was evident around the perimeter of the coffin. Two copper straight pins were recovered from the middle to upper eastern edge of the coffin outline.

Cranium fragments and teeth of an infant are present. All deciduous teeth are present, in occlusion, except the second molars, which are not in occlusion. Permanent teeth present, not in occlusion, from the maxillae are the right first molar, left central incisor, and right incisors, and from the mandible the first molar and right incisors.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all bone fragments and the teeth.

The extent of dental formation suggests an age at death of about 1.4 years.

BURIAL 186.—FN: The outline of the coffin was determined by the placement of nails. Also associated with the coffin was a concentration of yellow paint along the northern end. Two straight pins were recovered from the cranial region.

The incomplete remains, including light-colored hair, are of an infant. Bones present are the occipital (3), both temporals (2), left zygomatic (2), and cranium fragments.

Deciduous teeth present, in occlusion, from the maxillae are the left first molar, canines, and right central incisor, and from the mandible the left first molar and left canine. The deciduous left maxillary and left and right mandibular second molars are also present but are not in occlusion.

Permanent teeth present, not in occlusion, are the maxillary left first molar, maxillary right central incisor, and mandibular right first molar.

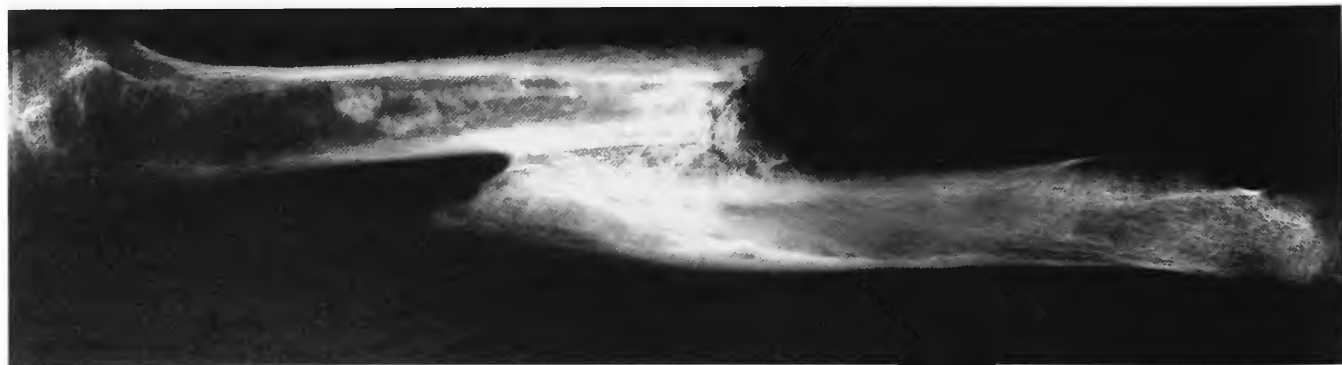


FIGURE 47.—Radiograph of healed fracture of right femur, burial 183.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 1.1 to 1.5 years.

BURIAL 187.—FN: Nails and a coffin outline were in association with the human remains. Pink paint was on the exterior coffin walls. No other artifacts were present.

Only the mandible (1) and several cranium fragments of a newborn infant are present. Preservation of the remains corresponds to weathering stage 5. Black staining is on the remains.

BURIAL 188.—FN: Nails and an unidentified colored pigment found in the northern end of the coffin were the only associated artifacts.

Only a left zygomatic and other cranial bones of a newborn infant are present. Preservation of the remains corresponds to weathering stage 5. Black staining is on the remains.

BURIAL 189.—FN: A coffin outline, wood fragments, and nails were in association with this burial. Other artifacts found in the burial include metallic rickrack from the southeast corner, a fabric fragment, and a painted clay marble from the northern end. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 190.—FN: A coffin outline and nails were associated with this burial. Wood staining made visible portions of the coffin walls and floor. No other artifacts were present.

Both temporals (1), vertebrae fragments, the middle third (1) of a left humerus, and the middle (1) and distal (1) thirds of the right humerus of a newborn infant are present. Preservation of the remains corresponds to weathering stage 4.

BURIAL 191.—FN: Coffin nails and one straight pin were associated with this burial. No other artifacts were present.

The incomplete remains are of an infant. Bones present are the frontal (1), both temporals (1), mandible (1), and long-bone fragments.

Deciduous teeth present from the maxillae are the left second molar, first molars, canines, right lateral incisor, and left central incisor, and from the mandible the right second molar, first molars, canines, and right lateral incisor. Only the maxillary incisors are in occlusion.

Permanent teeth present, not in occlusion, are the right first molars and right incisors.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

The extent of dental formation suggests an age at death of about 1.3 years.

BURIAL 192.—FN: A coffin outline and nails were associated with this burial. Small tacks ran along the lower portion of the coffin's west side. A faint pink cast on the coffin floor suggested that the coffin had been painted pink or red. Other artifacts found include a copper fragment retrieved from the upper cervical region, two nails, and copper hooks and eyes recovered from the cervical region, right innominate, and left proximal radius.

The incomplete remains are of an adult male. Present are the bones of the cranial vault (1); both zygomatics (1); maxillae (3); palatines (2); mandible (2); both clavicles (2); sacrum (3); both scapulae (3); both ilia (3); right ischium (3); left (3) and right (1)

patellae; all cervical vertebrae; eight thoracic vertebrae; all lumbar vertebrae; first ribs; four left and four right other ribs; proximal (2), middle (2), and distal (1) thirds and distal epiphysis (1) of the left humerus; proximal epiphysis (1), proximal third (2), and remainder (1) of the right humerus; proximal epiphysis (1) and proximal third (2) of the left radius; right radius (1); proximal epiphysis (1) and proximal third (1) of the left ulna; right ulna (1); proximal (2), middle (1), and distal (2) thirds and distal epiphysis (2) of the left femur; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the right femur; proximal third (2), rest of the diaphysis (1), and distal epiphysis (1) of the left tibia; proximal epiphysis (2) and proximal (1) and middle thirds (1) and distal epiphysis (1) of the right tibia; left fibula (2); middle third (3) and distal epiphysis (3) of the right fibula; some bones of the right hand (navicular, lunate, pisiform, hamate, third metacarpal, proximal phalanx), both calcanei; both tali; both cuboids; left cuneiforms; both foot naviculars; left metatarsals; three proximal foot phalanges; hyoid; and some ossified cartilage.

Permanent teeth present, in occlusion, are the mandibular right first premolar, right canine, and right lateral incisor. The remainder of the mandibular teeth were lost antemortem.

Cariou lesions are on the interproximal surfaces of the right lateral incisor and right canine.

Preservation of the remains corresponds to weathering stage 2. Black staining is on the humeri, ulnae, and cranial bones.

The extent of tooth loss, cranial suture closure, arthritic change, and osteophytosis suggest an age at death of 60 to 80 years. The large size of the bones suggests male sex.

The left clavicle displays an irregular bony exostosis on the inferior surface of the proximal diaphysis. It measures about 15 × 27 mm and presents very delicate bone formation.

Three thoracic vertebrae and two ribs are fused together on the right side (Figure 48). Well-remodeled "molten wax" type bone is present. Also showing fusion on the right side are the eleventh and twelfth thoracic vertebrae (centra are not present) and two lumbar vertebrae (left sides missing).

The glenoid cavity of the right scapula is pitted, with extensive lipping on its rim.

The anterior aspect of the right humeral head shows extensive, well-remodeled, arthritic bone formation. Arthritic-type bony extensions are also present on the distal articular surface of this bone. The humerus displays arthritic-type bony extensions on the distal articular surface. A well-remodeled prominent bony deposit on the left humerus diaphysis (lateral side, proximal third of diaphysis) measures about 18 × 40 mm. Arthritic changes are also present on the proximal ends of both ulnae. The right femoral head displays extensive arthritic alterations, although the general shape is normal. The femoral neck is abnormally wide.

BURIAL 193.—FN: A coffin outline and nails in association with this burial. Cream white paint was found along the western coffin side. No other artifacts were present.

The incomplete remains are of an infant. Bones present are the frontal (2); both parietals (2); occipital (3); both temporals (2); both zygomatics (1); mandible (2); left (2) and right (1) clavi-



FIGURE 48.—Fusion of thoracic vertebrae, burial 192.

cles; both scapulae (2); second and four other cervical vertebrae; eight thoracic vertebrae; five lumbar vertebrae; first two ribs and six left and six right other ribs; middle (2) and distal (2) thirds of the left humerus; and diaphysis (2) of the right humerus.

Deciduous teeth present, not in occlusion, from the maxillae are the right second molar and left central incisor, and from the mandible the molars, right canine, lateral incisors, and right central incisor.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of newborn to 3 months.

BURIAL 194.—FN: Only a coffin outline and nails were in association with this burial. The coffin was sized for a newborn.

The frontal (3) and both temporals (2) of an infant are present. Preservation of the remains corresponds to weathering stage 4. Black staining is on the bones.

BURIAL 195.—FN: Coffin nails and wood were associated with this burial. The wood constituted sections of the coffin's eastern and upper western sides and had associated fabric lining. Also recovered were coffin nails and clothing, namely a dark green garment beneath a jacket with buttons. The southern end of the coffin had been disturbed by heavy machinery.

The incomplete remains of an adult. Bones present are both temporals (3); proximal (3), middle (2), and distal (3) thirds of both femora; and middle thirds (3) of both tibiae.

Permanent teeth present, in occlusion, from the maxillae are the left third molar, right first and second molars, right premolars, canines, and incisors, and from the mandible the left second molar, left first molar, second premolars, right first premolar, and left canine.

Preservation of the remains corresponds to weathering stage 4.

The extent of occlusal dental attrition suggests an age at death of 45 to 55 years. Although the skeletal remains were not diagnostic for sex, the presence of the jacket suggests the individual was male.

BURIAL 196.—FN: A coffin outline and nails were in association with this burial. Other artifacts recovered were two copper pins, one with adhering hair or fabric. The coffin was sized for a young infant.

Only small, unidentifiable bone fragments are present. Their preservation corresponds to weathering stage 4. Green stains and black stains are on some of the fragments.

BURIAL 197.—FN: A coffin outline and nails were present with this burial. No other artifacts were recovered.

The incomplete remains are of a fetus. Bones present are the frontal (2); parietals (2); occipital (2); both temporals (1); mandible (1); both clavicles (1); left scapula (1); left ilium (2); two cervical vertebrae; three thoracic vertebrae; both first ribs; four left and four right other ribs; proximal third (2) of the left humerus; proximal (2), middle (1), and distal (1) thirds of the right humerus; middle thirds (1) of the left radius and ulna; proximal (2), middle (1), and distal (2) thirds of the right femur; and proximal third (2) of the right tibia.

All deciduous teeth except the maxillary left canine and mandibular canines are present but are not in occlusion.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests a fetal age at death of 8 lunar months.

BURIAL 198.—FN: A coffin outline, wood fragments, and nails were associated with the human remains. No other artifacts were present.

Both temporals (3) and teeth of an infant are present. Deciduous teeth, not in occlusion, are the first molars, canines, maxillary right second molar, maxillary right central incisor, mandibular left lateral incisor, and mandibular central incisors.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth.

The degree of dental development suggests an age at death of 0.8 to 1 year.

BURIAL 199.—FN: A coffin outline, wood fragments, and nails were associated with this burial. Fabric with decorative rickrack had adhered to the wood. Two ornamental nails recovered along the western edge of the burial had what appeared to be decorative escutcheons around them.

The occipital (3) and left temporal (3) of a newborn are present. Preservation of the remains corresponds to weathering stage 5. Black staining is on the bones.

BURIAL 200.—FN: A coffin outline, wood fragment, and copper pin fragments were the only associated artifacts. The coffin was sized for an infant.

Only fragments of teeth, likely deciduous, are present.

BURIAL 201.—FN: A coffin outline and nails were in association with this burial. No other artifacts were present. The coffin was sized for a young infant.

Only the petrous portion of an infant temporal with green and red staining is present.

BURIAL 202.—FN: A coffin outline, nails (plain and ornamental), and wood from the collapsed coffin lid were associated with this burial. Rickrack decoration was recovered along the eastern side of the coffin; evidence of interior white paint could be seen along the western side. Also recovered were an apparent fragment of black fabric found in the cervical region, copper hooks and eyes, white glass buttons, and a black button originally located in the lumbar area. Light-colored hair was present.

The incomplete remains are of a child. Present are the bones of the cranial vault (2); maxilla, side undetermined (3); left ilium (3); proximal (1), middle (2), and distal (1) thirds and distal epiphysis (2) of a left femur; proximal (2), middle (1), and distal (2) thirds of a left tibia; other fragments from long bones; and an unidentifiable metacarpal.

One deciduous mandibular right second molar, in occlusion, and all permanent teeth are present. The permanent teeth are in occlusion except for the maxillary second and third molars, mandibular third molars, and mandibular right second premolar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the many of the bones.

The extent of dental formation suggests an age at death of 10 to 12.3 years.

The lateral incisors are shovel-shaped, and a metopic suture is present.

BURIAL 203.—FN: A coffin outline, nails, one pin, and fabric were associated with the human remains. No other artifacts were present.

The incomplete remains are of an infant. Bones present are the occipital (3); both temporals (3); left maxilla (2); mandible (3); both clavicles (3); both scapulae (3); both ilia (3); vertebrae fragments; diaphyses of both humeri (3); diaphyses of the left (2) and right (3) radius; proximal thirds (3) and remainder (2) of the diaphyses of the ulnae; and proximal epiphyses (3) and proximal (1), middle (1), and distal (2) thirds of the fibulae.

Deciduous teeth present, not in occlusion, from the maxillae are the right first molar, right canine, right lateral incisor, and left central incisor, and from the mandible the right first molar, left canine, and left lateral incisor.

Preservation of the remains corresponds to weathering stage 1. Green staining is on the ventral side of the right ilium. Black stains are on many other bones.

BURIAL 204.—FN: Burial 204 was on top of burial 205 and may have been disturbed by heavy machinery. The only artifacts recovered were plain nails and one ornamental nail.

Only cranium fragments of an infant are present. Preservation of the remains corresponds to weathering stage 5.

BURIAL 205.—FN: A coffin outline, nails, and wood fragments were in association with this burial. No other artifacts were recovered.

Only the frontal (3), occipital (2), left temporal (3), and teeth of an infant are present.

Deciduous teeth present, not in occlusion, are the maxillary left molars, and from the mandible the second molars, left first molar, and left canine.

The permanent mandibular left first molar, not in occlusion, is present.

Preservation of the remains corresponds to weathering stage 4 or 5. Black staining is on the cranial bones.

The extent of dental formation suggests an age at death of 0.3 to 0.8 years.

BURIAL 206.—FN: Nails were recovered around the perimeter of the coffin. Fragments of coffin wood and screws were also found. Evidence of pink paint was on the interior and exterior coffin sides and floor. The coffin was sized for an infant.

Only two dental fragments are present. Preservation of the remains corresponds to weathering stage 5.

BURIAL 207.—FN: Nails were the only artifacts recovered in association with this burial.

Only the occipital (2), left (2) and right (3) temporals, and teeth are present. Deciduous teeth, in occlusion, from the maxillae are the right molars, right canine, and left lateral incisor, and from the mandible the molars, canines, and left lateral incisor.

Preservation of the remains corresponds to weathering stage 4 or 5. Black staining is on all cranial bones.

The extent of dental formation suggests an age at death of 3.5 to 5 years.

BURIAL 208.—FN: A coffin outline, wood, and nails were associated with this burial. Evidence of pink paint was found on the exterior lid, floor, and western side of the coffin. No other artifacts were present.

The temporals (2), maxillae (3), and teeth of a child are present. All of the deciduous teeth are present, in occlusion, except the right first molar, left canine, and right central incisor of the maxillae and the canines and right lateral incisor of the mandible.

Permanent teeth present, not in occlusion, are the right first molars, maxillary left first molar, right canines, left incisors, and mandibular right central incisor.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 1.5 to 2 years.

BURIAL 209.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

The incomplete remains are of a newborn. Bones present are the occipital (2), both temporals (2), mandible (2), left clavicle (2), vertebrae and rib fragments, middle third of the right humerus (1), left femur (2), and left tibia (1).

Deciduous teeth present, not in occlusion, are the mandibular right first molar, mandibular right canine, and the right central incisors.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all the remains.

BURIAL 210.—FN: A coffin outline, nails, and a brass straight pin found near the mandible were associated with this burial. Traces of pink paint were also evident. No other artifacts were present.

The incomplete remains are of a child. Bones present are the temporals (3), maxillae (2), mandible (2), right clavicle (3), right scapula (1), bones of the right innominate (3), vertebrae fragments, middle third of the right humerus (1), right femur (3), and left tibia (1).

All deciduous teeth are present, in occlusion, except the maxillary incisors. The mandibular left canine and mandibular right central incisor are unobservable.

All permanent teeth are present, not in occlusion, except the third molars and the right premolars, right canine, and left central incisor of the mandible.

Cariou lesions in deciduous teeth are on the interproximal surfaces of the second molars, maxillary first molars (two lesions on each tooth), maxillary left canine, mandibular first molars (right with two lesions), and mandibular left incisors (two lesions on each tooth), and the occlusal surfaces of the mandibular first molars.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the cranial bones, long bones, and vertebrae.

The extent of dental formation suggests an age at death of 4.8 to 6.3 years.

BURIAL 211.—FN: A coffin outline and nails were in association with this burial.

The incomplete remains are of an infant. Bones present are both temporals (3), mandible (3), and first two cervical vertebrae.

Deciduous teeth present, not in occlusion, are the molars, maxillary right incisors, maxillary left lateral incisor, and mandibular right canine.

The permanent mandibular right canine is present, not in occlusion.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all the remains.

The extent of dental formation suggests an age at death of about 8.2 months.

BURIAL 212.—FN: A coffin outline and nails were associated with the human remains. Soil within the coffin was partially stained pink red, suggesting the coffin color. No other artifacts were recovered.

Both temporals (3) and teeth of an infant are present. All deciduous teeth are present, in occlusion, except the maxillary right incisors, maxillary right canine, mandibular central incisors, and mandibular left lateral incisor.

Permanent teeth present, not in occlusion, are the maxillary left first molar, mandibular right first molar, and mandibular left incisors.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 1.1 years.

BURIAL 213.—FN: A coffin outline, wood, and nails (plain and ornamental) were in association with this burial. Fabric was attached to the coffin side with tacks, and a flake of unidentified material was recovered from the middle of the coffin's western edge.

Human remains are a left temporal (3) and teeth of an infant. Deciduous teeth, in occlusion, are the molars, left canines, mandibular right canine, and mandibular lateral incisors. Permanent teeth, not in occlusion, are the maxillary left canine and maxillary right lateral incisor.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all the remains.

The extent of dental formation suggests an age at death of 1 to 1.3 years.

BURIAL 214.—FN: Coffin wood and nails were associated with this burial. A wood fragment with attached fabric was recovered along the midsection of coffin's east wall. No other artifacts were present.

Human remains are the deciduous teeth of a young child. All teeth are present, in occlusion, except the central incisors, maxillary left lateral incisor, and mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the teeth.

The extent of dental formation suggests an age at death of 2 to 3 years.

BURIAL 215.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

Human remains are the cranium fragments and teeth of an infant. Deciduous teeth, in occlusion, from the maxillae are the molars, left canine, and left central incisor, and from the mandible the right second molar and lateral incisor. Permanent teeth, not in occlusion, are the first molars and maxillary central incisors.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth.

The extent of dental formation suggests an age at death of about 1.5 years.

BURIAL 216.—FN: No historic artifacts were in this burial, but within the central portion of the burial stain were charcoal, prehistoric ceramics, fire-cracked rock, and fire-hardened soil.

No human remains were recovered.

BURIAL 217.—FN: A coffin outline and nails were in association with this burial, and a straight pin was recovered from the innominate region.

The incomplete remains are of a child. Bones present are the frontal (1); both parietals (2); occipital (2); both temporals (2); second cervical vertebra; two other cervical vertebrae; proximal (2), middle (2), and distal (3) thirds of the left femur; proximal epiphysis (2), diaphysis (2), and distal epiphysis (1) of the right femur; proximal (2), middle (3), and distal (3) thirds of the left tibia; proximal epiphysis (2) and middle third (2) of the right tibia; and one calcaneus (3), side undetermined.

Deciduous teeth present, in occlusion, from the maxillae are the second molars, left first molar, and canines, and from the mandible the left second molar, first molars, and left canine. The mandibular right second molar is present but is not in occlusion.

Permanent teeth present in occlusion are the mandibular first molars. Those not in occlusion are the second molars; from the maxillae the first molars, premolars, left lateral incisor, and central incisors; and from the mandible the right second premolar, right canine, and incisors.

Carious lesions are on the occlusal surface of the deciduous mandibular right first and second molars and interproximal surfaces of the deciduous maxillary right canine and mandibular left first molar.

Enamel defects in permanent teeth consist of linear horizontal grooves in the maxillary left lateral incisor (two lesions, 6.1 mm, 7.5 mm) and maxillary left (5.5 mm) and right (two lesions, 3.3 mm, 5.7 mm) central incisors.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the tibia, vertebrae, cranium, and femur.

The extent of dental formation suggests an age at death of 4.8 to 6.3 years.

BURIAL 218.—FN: A coffin outline and nails were the only associated artifacts.

The occipital (3), and left (1) and right (2) temporals, and teeth of an infant are present. The deciduous incisors are in occlusion; the other deciduous teeth are present but are not in occlusion. Permanent teeth present, not in occlusion, are the maxillary first molars, maxillary central incisors, and mandibular left lateral incisor.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

The extent of dental formation suggests an age at death of about 9 months.

BURIAL 219.—FN: This burial was within the same grave as burial 224. No artifacts were present. The size of the coffin suggests the burial was of a late-term fetus or small newborn.

No human remains were recovered.

BURIAL 220.—FN: Nails were the only associated artifacts.

Only the temporals (3), mandible (3), two ribs, middle third of the left femur (3), and teeth of a young infant are present. Deciduous teeth, not in occlusion, from the maxillae are the central incisors and right first molar, and from the mandible the first molars, right second molar, and right canine.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all the bones.

The extent of dental formation suggests an age at death of about 2.8 months.

BURIAL 221.—FN: This burial had been heavily disturbed by grade stripping. Artifacts recovered include nails, 48 blue seed beads from the cranial region, and white beads from the cervical region (Beynon, 1989:68). Pink red staining in the soil suggests the coffin color.

The incomplete remains are of an infant. Bones present are the left temporal (1), mandible (2), right ilium (1), vertebrae fragments, proximal thirds of the right humerus (2) and right femur (1), left (2) and right (1) thirds of the tibiae, and middle third (3) of the right fibula.

Deciduous teeth in occlusion are the mandibular lateral incisors and mandibular right central incisor. Those not in occlusion are the four canines, maxillary right second molar, maxillary first

molars, mandibular second molars, and mandibular right first molar.

Permanent teeth present but not in occlusion are the first molars, right canines, maxillary central incisors, mandibular lateral incisors, and mandibular right central incisor.

Enamel defects consist of linear horizontal grooves in the maxillary left first molar (n/a), maxillary left (4.0 mm) and right (3.5 mm) central incisors, mandibular left (n/a) and right (n/a) first molars, mandibular left (3.2 mm) and right (3.0 mm) lateral incisors, and mandibular right central incisor (2.8 mm).

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 1 to 1.8 years.

BURIAL 222.—FN: Coffin nails were the only associated artifacts recovered.

The occipital (2), both temporals (3), and bone fragments of an infant are present.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the remains.

The size of the bones suggests the burial was of a newborn.

BURIAL 223.—FN: Soil staining suggests a coffin, but no definite outline was established. Three nails were the only artifacts recovered. The grave outline was the size of a young child's coffin.

No human remains were recovered.

BURIAL 224.—FN: This burial was within the same grave as burial 219. Nails were the only artifacts recovered. The size of the coffin suggests the burial was of a late-term fetus or a small newborn. The size and placement of the coffins suggest they may represent the stillborn twins.

No human remains were recovered.

BURIAL 225.—No burial was found; no human remains were recovered.

BURIAL 226.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present. The burial had been disturbed, and the complete coffin outline could not be discerned.

No human remains were recovered.

BURIAL 227.—No burial was found; no human remains were recovered.

BURIAL 228.—FN: This burial had been disturbed, most likely by heavy machinery. Concentrated root matter indicated a coffin outline, the size of which suggested burial of an infant or young child.

No human remains were recovered.

BURIAL 229.—FN: The coffin perimeter was indicated by wood staining; a concentration of wood was at the southern end of the coffin outline. Nails were the only other recoverable artifacts. The coffin was sized for a young child.

Human remains are a black-stained temporal fragment of an infant. Its preservation corresponds to weathering stage 4.

BURIAL 230.—FN: Coffin wood (fragments were around the coffin perimeter) and nails were in association with this burial. Pink red pigment was recovered from the edges of the coffin. No other artifacts were present. The coffin was sized for a newborn.

Human remains are a black-stained temporal fragment of an infant. Its preservation corresponds to weathering stage 3.

BURIAL 231.—FN: Wood along the perimeter of the coffin, ornamental and plain nails, and an ornamental copper braid in the lower portion of the western side were found in association with this burial.

The temporal bones (1) and teeth of a young child are present. Deciduous teeth, in occlusion, are the second molars, canines, maxillary first molars, maxillary left central incisor, and mandibular right first molar. Permanent teeth, not in occlusion, are the canines, maxillary first molars, maxillary left first premolar, maxillary left central incisor, mandibular left lateral incisor, and mandibular central incisors.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the remains.

The extent of dental formation suggests an age at death of about 3.5 years.

BURIAL 232.—FN: A coffin outline and nails were in association with this burial. One button was also recovered.

The incomplete remains are of a child. Bones present are the frontal (2), left parietal (3), occipital (2), left (2) and right (3) temporals, mandible (3), middle third (2) of the left femur, middle (2) and distal (3) thirds of the right femur, proximal (3) and middle (2) thirds of the left tibia, proximal (2) and middle (2) thirds of the right tibia, proximal (3) and middle (2) thirds of the left fibula, middle third (2) of the right fibula, and one calcaneus of undetermined side.

The deciduous maxillary left canine is present, in occlusion.

Permanent teeth present, not in occlusion, are the maxillary second molars, maxillary right first molar, maxillary left first premolar, and mandibular right first molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on most of the remains.

The extent of dental formation suggests an age at death of about 5.3 years.

BURIAL 233.—FN: A coffin outline and nails were associated with the human remains. No other artifacts were present. The size of the coffin suggests the burial was of a newborn.

A temporal fragment (3) of an infant is present. Its preservation corresponds to weathering stage 5.

BURIAL 234.—There are no field notes for this burial; no human remains were recovered.

BURIAL 235.—FN: Nails and a wood fragment were the only associated artifacts. The coffin was sized for an infant.

Only fragments of deciduous teeth of an infant are present. Their preservation corresponds to weathering stage 5.

BURIAL 236.—FN: Coffin nails were in association with this burial. An unidentified metal headpiece was found surrounding the cranium, and a fragment of fabric was recovered along the western edge of the coffin. These may represent bonnet remains.

The incomplete remains are of an infant. Bones present are the parietals (3), occipital (3), left temporal (2), five cervical vertebrae, and two thoracic vertebrae.

Deciduous teeth present, not in occlusion, are a molar and a canine.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the bone fragments.

The extent of dental formation suggests an age at death of about 6 months.

BURIAL 237.—FN: Coffin nails with some wood still attached were associated with this burial. There was evidence of black paint on the coffin, possibly from the interior. The only other artifact recovered was a copper straight pin from the left side of the cranium.

The parietals (3), temporals (3), and teeth of an infant are present. Deciduous teeth, in occlusion, are the second molars, maxillary right first molars, maxillary left canine, mandibular right first molar, and mandibular right lateral incisor. Permanent teeth, not in occlusion, are the maxillary left first molar, maxillary right central incisor, mandibular left first molar, and mandibular left central incisor.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all remains.

The extent of dental formation suggests an age at death of 2 to 2.3 years.

BURIAL 238.—FN: A coffin outline, wood, nails, and miscellaneous metal fragments were in association with this burial. A cloth fragment with unknown copper material was retrieved from the southwest corner of the burial.

No human remains were recovered.

BURIAL 239.—FN: Nails were the only associated artifacts.

The incomplete remains are of an infant. The temporal bones (3) and one cervical vertebra are present.

Deciduous teeth present, in occlusion, are the molars and left canines.

Permanent teeth present, not in occlusion, are the maxillary left first molar and maxillary central incisors.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of about 10.6 months.

BURIAL 240.—FN: Nails and two straight pins found in the cervical region were in association with the human remains. No other artifacts were recovered.

The incomplete remains are of an infant. Bones present are the frontal (2), both parietals (3), occipital (3), left (3) and right (2) temporals, mandible (3), right clavicle (2), right scapula (2), three cervical vertebrae, five thoracic vertebrae, four lumbar vertebrae, first right rib, three left and five right ribs, proximal epiphysis (1) of the left humerus, proximal epiphysis (2) and proximal (2) and distal (2) thirds of the right humerus, proximal epiphysis (2) and diaphysis (2) of the left femur, proximal (2) and middle thirds (2) of the right femur, and proximal epiphysis (1) of the right tibia.

Deciduous teeth present, not in occlusion, are the maxillary left second molar, maxillary right central incisor, and mandibular right first molar.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 2.5 months.

BURIAL 241.—FN: Coffin nails were the only associated artifacts.

The incomplete remains are of an infant. Bones present are the occipital (3), left (3) and right (2) temporals, first cervical vertebra, and three other cervical vertebrae.

Deciduous teeth present, not in occlusion, are all maxillary teeth except the left lateral incisor and all mandibular teeth except the left first molar, left canine, and left incisors.

Permanent teeth present, not in occlusion, are the mandibular right first molar and mandibular right central incisor.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all remains.

The extent of dental formation suggests an age at death of about 10 months.

BURIAL 242.—This number does not represent a burial.

BURIAL 243.—FN: A coffin outline and nails were the only associated artifacts.

Three forming deciduous teeth of a young infant are present, a molar, the mandibular left lateral incisor, and a canine.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental development suggests an age at death of about 2 to 3 months.

BURIAL 244.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. The coffin was sized for a late-term fetus or newborn.

No human remains were recovered.

BURIAL 245.—FN: Coffin nails were the only associated artifacts.

The incomplete remains are of an infant. Bones present are the occipital (3), left (2) and right (3) temporals, mandible (2), one second cervical vertebra, seven other vertebrae, both first ribs, and three left and one right other ribs.

Deciduous teeth present, not in occlusion, from the maxillae are the second molars, right first molar, left canine, and right lateral incisor; all mandibular teeth are present.

Permanent teeth present, not in occlusion, are the mandibular right first molar and mandibular left lateral incisor.

Preservation of the remains corresponds to weathering stage 3.

The extent of tooth formation suggests an age at death of about 10 months.

BURIAL 246.—FN: Tacks were recovered every 8 cm along the east and west sides of the coffin.

The incomplete remains are of a young child. Bones present are the frontal (1), both parietals (3), occipital (2), left (2) and right (3) temporals, mandible (3), left ilium (3), four thoracic vertebrae, one right rib, proximal third (2) and remainder of the diaphysis (1) of the left ulna, middle third (3) of the femora, diaphysis (1) of the left tibia, and diaphysis (3) of the left fibula.

Deciduous teeth present, in occlusion, are the molars, maxillary canines, mandibular left canine, and mandibular central incisors.

Permanent teeth present, not in occlusion, are the first molars, central incisors, maxillary left canine, mandibular right canine, and mandibular lateral incisors.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 1.8 to 2.3 years.

BURIAL 247.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

The incomplete remains are of an infant. Bones present are the frontal (1), left parietal (1), occipital (1), both temporals (2), left maxilla (2), left palatine (3), mandible (1), both clavicles (1), both scapulae (1), both ilia (1), vertebrae fragments, both first ribs, five left and five right other ribs, diaphysis (1) of the left humerus, proximal third (2) and remainder of the diaphysis (1) of the right humerus, diaphysis (1) of the left radius, proximal epiphysis (1) and diaphysis (1) of the left ulna, both diaphyses (1) of the femora, proximal (1) and middle (1) thirds of the left tibia, and diaphysis (2) of the right tibia.

Deciduous teeth present, not in occlusion, are coalescing cusps of a molar, the maxillary left central incisor, and the mandibular left incisors.

Preservation of the remains corresponds to weathering stage 2. Black staining is on many of the remains.

The extent of dental formation suggests the remains are of a newborn.

BURIAL 248.—FN: Nails and straight pins (three small fragments recovered from the cranial region) were in association with this burial. Wood fragments and fabric were also recovered. The coffin was sized for a young infant.

Only the temporals (3) are present; their preservation corresponds to weathering stage 4. Black staining is on the bones.

BURIAL 249.—FN: Wood and nails were in association with this burial. No other artifacts were recovered.

The incomplete remains are of an infant. Bones present are the occipital (2), both temporals (3), and four cervical vertebrae.

Deciduous teeth present, not in occlusion, are all maxillary teeth and from the mandible the second molars, left first molar, left canine, and right incisors.

Preservation of the remains corresponds to weathering stage 4. Black staining is on most of the remains.

The extent of dental formation suggests an age at death of about 8 months.

BURIAL 250.—FN: This burial intruded into burial 242. Tacks (recovered every 2 to 3 cm) held a cloth lining or trim to the perimeter of the coffin's lid. The only cloth preserved was found around the tacks. Wood fragments were also recovered.

One deciduous maxillary left second molar, not in occlusion, is present. Its stage of formation suggests an age at death of 0.5 to 2 years.

BURIAL 251.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. The size of the coffin suggests the burial was of a newborn or young infant.

No human remains were recovered.

BURIAL 252.—FN: Coffin nails and wood were associated with this burial. Associated tacks were also recovered.

Human remains are the petrous portion of a right temporal (3) and teeth of an infant. Deciduous teeth, not in occlusion, from the maxillae are the left second molar, first molars, and right ca-

nine, and from the mandible the second molars, right first molar, right canine, and right lateral incisor. Permanent teeth, not in occlusion, are all from the mandible: the right first molar, left incisors, and right lateral incisor.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth and temporal.

The extent of dental formation suggests an age at death of about 11 months.

BURIAL 253.—FN: Coffin nails were in association with this burial. Other artifacts recovered were two copper coins, one stacked on top of the other on the eastern side of the cranium, and an unidentified lithic tool on the western side of the upper torso.

The incomplete remains are of a young child. Bones present are the parietals (3), occipital (3), left (2) and right (3) temporals, mandible (3), first two cervical vertebrae, and one other cervical vertebra.

D deciduous teeth present, in occlusion, are the molars, maxillary incisors, and mandibular left incisors.

Permanent teeth present, not in occlusion, are the first molars, canines, maxillary left incisors, maxillary right lateral incisor, mandibular left first premolar, and mandibular incisors.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the left temporal. Black staining is on most remains. Light brown hair is also present.

The extent of dental formation suggests an age at death of 2.8 to 3.5 years.

BURIAL 254.—FN: A coffin stain and nails were in association with this burial. Nails and wire made of unidentified material were found in the cranial region. The wire may have been part of a headpiece.

One petrous portion (3) of a temporal, side undetermined, of an infant is present. Its preservation corresponds to weathering stage 5. Black staining is on the bone.

BURIAL 255.—FN: A coffin outline, nails, and wood fragments were associated with this burial. One copper straight pin was recovered in the region of the left leg bones.

The incomplete remains are of an adult female. Bones present are the parietals (3); occipital (3); left (1) and right (2) temporal; mandible (3); first two cervical vertebrae; proximal epiphysis (2), proximal third (3), and remainder of the diaphysis (2) of the left humerus; proximal epiphysis (3) of the right humerus; middle thirds (3) of the femora; middle third (2) of the left tibia; distal epiphysis (2) of the right tibia; both diaphyses (3) of the fibulae; both calcanei; both tali; right cuboid, and right cuneiforms.

Permanent teeth present, in occlusion, are all maxillary teeth except the left first premolar and all mandibular teeth except the right first molar and right first premolar.

Caries lesions are on the occlusal surfaces of the maxillary third molars, maxillary left second molar, maxillary right first molar, and mandibular right third molar; interproximal surfaces of the maxillary third molars, maxillary second molars, maxillary left first molar (2 lesions), maxillary right premolars, maxillary right lateral incisor, mandibular left premolars, mandibular right canine, and mandibular left central incisor; large surfaces of

the mandibular left first molar and mandibular left second premolar; and smooth surface of the maxillary right third molar.

One enamel defect is present: a single pit on the maxillary right lateral incisor.

Preservation of the remains corresponds to weathering stage 4. Black staining is present, mainly on the postcranial material.

The extent of arthritic change suggests an age at death of 40 to 55 years. The bone size suggests female sex.

BURIAL 256.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

The incomplete remains are of an adult male. Bones present are the frontal (1); left (2) and right (1) parietal; occipital (2); both temporals (1); left zygomatic (2); both maxillae (1); both palatines (1); mandible (1); both scapulae (3); both ilia (2); left ischium (2); first and second cervical vertebrae; four other cervical vertebrae; four thoracic vertebrae; two left and two right ribs; proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left humerus; proximal epiphysis (3) and proximal (3), middle (1), and distal (2) thirds and distal epiphysis (2) of the right humerus; both epiphyses (2) and diaphysis (1) of the left radius; proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the right radius; proximal epiphysis (1) and proximal (1), middle (1), and distal (3) thirds of the left ulna; proximal epiphysis (3), diaphysis (1), and distal epiphysis (1) of the right ulna; proximal epiphysis (1), proximal third (1), and remainder (2) of the left femur; proximal epiphysis (2) and proximal (1) and middle (1) thirds and remainder (2) of the right femur; proximal epiphysis (3) and proximal (3), middle (2), and distal (2) thirds of the left tibia; proximal epiphysis (3) and diaphysis (3) of the right tibia; right hand navicular; right pisiform; right greater multangular; both lesser multangulars; right capitate; left second and third metacarpals; right fourth metacarpal; two proximal hand phalanges; one distal hand phalanx; left calcaneus; both tali; right cuboid, right second metatarsal; and right fourth metatarsal.

Permanent teeth present, in occlusion, are all maxillary teeth except the right third, left second, and left first molars, and all mandibular teeth except the right third molar and first molars. All the missing teeth were lost antemortem.

Caries lesions are on the interproximal surfaces of the maxillary right premolars and maxillary left first premolar. An alveolar abscess is associated with the mandibular right second molar.

Preservation of the remains corresponds to weathering stage 3. Black staining is on all the remains.

Cranial suture closure, dental attrition, and dental loss suggest an age at death of 35 to 45 years. General bone size suggests male sex.

BURIAL 257.—No evidence of a burial was noted, and no human remains were recovered.

BURIAL 258.—FN: Nails were the only artifacts in association with the human remains.

The incomplete remains are of an adult male. Bones present are the frontal (1); both parietals (2); occipital (3); left (1) and right (2) temporals; both zygomatics (1); both maxillae (1); both palatines (1); mandible (1); proximal (2), middle (3), and distal

(2) thirds and distal epiphysis (3) of the left humerus; proximal (3), middle (2), and distal (3) thirds and distal epiphysis (2) of the right humerus; proximal epiphysis (3), diaphysis (2), and distal epiphysis (3) of the left radius; diaphysis (1) of the left ulna; proximal epiphysis (3) and proximal third (3) of the right ulna; proximal epiphysis (2), diaphysis (1), and distal epiphysis (3) of the left femur; proximal epiphysis (2) and remainder (1) of the right femur; proximal epiphyses (2), diaphyses (1), and distal epiphyses (3) of the tibiae; middle third (1) of the left fibula; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the right fibula; both calcanei; and both tali.

All permanent teeth are present, in occlusion, except the maxillary left molars, lost antemortem, and the mandibular right second molar and first molars, all lost antemortem. The mandibular right central incisor was lost postmortem.

Carious lesions are on the occlusal surfaces of the maxillary right first molar, maxillary right first premolar, and mandibular left third molar; interproximal surface of the maxillary left central incisor; and large surface of the maxillary right second molar.

Preservation of the remains corresponds to weathering stage 3. Black staining is present, especially on the left humerus and femur.

Cranial suture closure, dental attrition, and dental loss suggest an age at death of 25 to 30 years. The general large size of the remains suggests male sex.

BURIAL 259.—FN: A coffin outline and nails were in association with this burial. Other artifacts include a plastic bead from the lower right-arm region and a straight pin from the cervical region. Field notes suggest the bead is intrusive, as a result of water damage, and thus is not associated with this burial.

The incomplete remains are of an adult male. Bones present are the frontal (3); right parietal (2); occipital (1); right temporal (1); right zygomatic (1); left (2) and right (1) maxillae; both palatines (1); mandible (1); both clavicles (2); right scapula (3); left (3) and right (2) ilium; right patella (1); all cervical vertebrae; one left and one right rib; proximal epiphyses (2) and remainder (1) of the humeri; distal epiphysis (2) and remainder (1) of the left radius; proximal epiphysis (1), proximal third (1), and middle third (2) of the right radius; left ulna (1); proximal epiphysis (1) and proximal (1) and middle (2) thirds of the right ulna; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (1) of the left femur; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the right femur; proximal epiphysis (2) and proximal (3), middle (1), and distal (1) thirds and distal epiphysis (2) of the left tibia; proximal epiphysis (1) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the right tibia; proximal (1), middle (1), and distal (2) thirds of the left fibula; diaphysis and distal epiphysis (1) of the right fibula; right capitate; both calcanei; both tali; left first cuneiform; right second cuneiform; both third cuneiforms; both foot naviculars; and all metatarsals.

The maxillary right second premolar, maxillary right central incisor, and all mandibular teeth were lost antemortem. The right

third molar, right canine, and left lateral incisor of the maxillae are present, in occlusion.

Carious lesions are on the interproximal surface of the left maxillary lateral incisor and root of the maxillary right third molar.

Preservation of the remains corresponds to weathering stage 2. Hair is present.

Cranial suture closure, tooth loss, and dental attrition suggest an age at death of 50 to 70 years. The size of the bones suggests male sex. The mastoid processes of the temporals are large and the head of the humerus measures 46 mm in maximum diameter.

BURIAL 260.—FN: A coffin outline and nails were associated with this burial. White paint was on the interior coffin floor and sides. No other artifacts were recovered.

The incomplete remains are of a child. Bones present are the frontal (2), left (2) and right (1) parietals, occipital (1), left temporal (1), right zygomatic (1), both maxillae (1), both palatines (1), mandible (2), right ischium (2), three cervical vertebra, five left and three right ribs, diaphysis (2) of the right humerus, proximal epiphysis and diaphysis (2) of the right femur, both diaphyses of the tibiae (2), and diaphysis (2) of the right fibula.

All deciduous teeth are present, in occlusion, except the mandibular left lateral and right central incisors.

Permanent teeth present, not in occlusion, from the maxillae are the first molars and central incisors, and from the mandible the right second molar, first molars, first premolars, canines, and incisors.

Carious lesions are in the deciduous maxillary dentition on the occlusal surface of the right second molar and the interproximal surfaces of the right lateral incisor and the central incisors.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 2.5 to 3.5 years.

BURIAL 261.—FN: Nails and a copper straight pin from the thoracic region were in association with this burial. No other artifacts were recovered.

Both temporals (3) and teeth of an infant are present. Deciduous teeth, not in occlusion, are the maxillary first molars, maxillary left incisors, and all mandibular teeth except the canines.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the temporals.

The extent of dental formation suggests an age at death of about 6 months.

BURIAL 262.—FN: This coffin was uppermost of five stacked coffins (see burials 274, 278, 279, 284). Wood fragments and nails were around the perimeter of the coffin, and below the wood fragments was a copper and cloth trim, lining the bottom of the coffin. Other artifacts include six "winged white metal" escutcheons and tacks, which were recorded as being portions of fastening devices for the cloth found on the exterior of the coffin, copper-headed tacks, found holding cloth in place at the coffin's foot and head, and three fragments of unidentified iron wire recovered from the floor of the coffin, which may be remains of a bonnet (Beynon, 1989:72). The coffin was sized for an infant.

No human remains were recovered.

BURIAL 263.—FN: Nails were the only associated artifacts recovered.

The incomplete remains are of an adult male. Bones present are the frontal (1); left (1) and right (2) parietals; occipital (1); left temporal (1); right zygomatic (1); both maxillae (1); both palatines (1); mandible (2); left clavicle (2); both scapulae (2); left (3) and right (2) ilium; right pubis (3); first two cervical vertebrae; two thoracic vertebrae; two lumbar vertebrae; proximal epiphysis (2), diaphysis (1), and distal epiphysis (2) of the left humerus; proximal epiphysis (1), diaphysis (1), and distal epiphysis (2) of the right humerus; proximal epiphysis (3) and proximal (2) and middle thirds (3) of the left radius; proximal epiphysis (2) and proximal (2), middle (1), and distal (2) thirds of the right radius; proximal epiphysis (2) and proximal (2) and middle (3) thirds of the left ulna; epiphyses (3), proximal third (2), and remainder of the diaphysis (1) of the right ulna; proximal epiphysis (2) and remainder (1) of the left femur; right femur (1); proximal epiphysis (2) and proximal (1), middle (2), and distal (3) thirds and distal epiphysis (2) of the left tibia; proximal epiphysis (1) and proximal (1), middle (1), and distal (3) thirds and distal epiphysis (3) of the right tibia; diaphysis (1) and distal epiphysis (2) of the left fibula; proximal (2), middle (1), and distal (2) thirds of the right fibula; both calcanei; both tali; and four proximal foot phalanges.

The following maxillary teeth are present, in occlusion: second molars, right first molar, left premolars, right first premolar, left canine, left lateral incisor, and right central incisor. Maxillary teeth lost antemortem were the left first molar, right second premolar, and right canine. The third maxillary molars were either lost antemortem or congenitally absent. All permanent mandibular teeth are present, in occlusion, except the right first molar and right second premolar.

Carious lesions are on the occlusal surface of the mandibular right third molar and interproximal surface of the mandibular left first molar.

Preservation of the remains corresponds to weathering stage 3.

Cranial suture closure, dental attrition, and dental loss suggest an age at death of 30 to 40 years. Pelvic morphology and general bone size suggest male sex.

The left tibia displays a large area of well-remodeled periosteal new bone formation on the proximal third of the medial surface. The involved area is about 100 mm in length.

BURIAL 264.—FN: A coffin outline and nails were associated with this burial. A large fragment of coffin wood was found along the western side of the burial in the lower leg region along with an unidentified button fragment found at the proximal end of the left femur.

The incomplete remains are of an adult male. Bones present are the occipital (2); left (3) and right (2) temporals; mandible (2); right clavicle (2); both scapulae (3); left (3) and right (2) ilia; right patella (2); first two cervical vertebrae; four other cervical vertebrae; proximal epiphysis (2) and remainder (1) of the left humerus; right humerus (1); proximal epiphysis (2) and remainder (1) of the left radius; distal epiphysis (2) and remainder (1) of the right radius; left ulna (1); proximal epiphysis (1) and proxi-

mal (1), middle (1), and distal (2) thirds of the right ulna; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (1) of the left femur; right femur (1); proximal epiphysis (2) and proximal (3), middle (2), and distal thirds (3) and distal epiphysis (2) of the left tibia; proximal epiphysis (2) and remainder (1) of the right tibia; proximal third (2) of the right fibula; left metacarpals; right third metacarpal; two proximal hand phalanges; left tarsals; right calcaneus; right talus; right cuneiforms; left second metatarsal; right third and fourth metatarsals; and two proximal hand phalanges.

Preservation of the remains corresponds to weathering stage 2. Black staining is present throughout the skeleton.

The mandible is edentulous.

The extent of arthritic change suggests an age at death of 50 to 60 years. The large size of the bones suggests male sex.

BURIAL 265.—FN: This burial was above burial 291. Coffin nails and fragments of a felt coffin liner were in association with the human remains. Other artifacts include four buttons of unidentified material, a fragment of cloth, and a metal fastener. The size of the coffin suggests the burial was of a young infant.

Only the petrous portions of the temporals (3) and teeth of an infant are present. Deciduous teeth, not in occlusion, from the maxillae are the first molars, right canine, and right incisors, and from the mandible the right second molar, first molars, and left lateral incisor.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 266.—FN: A thin line was present, marking only a section of the coffin's northern end. One nail was found with this burial.

What may be ilium fragments are present of an individual of undetermined age at death. Preservation of the remains corresponds to weathering stage 3.

BURIAL 267.—FN: A coffin outline and nails were in association with this burial. Apparent pink paint was on the floor of the coffin, which was sized for an infant.

The petrous portions of both temporals (3) and one deciduous maxillary left central incisor, not in occlusion, are present. Preservation of the remains corresponds to weathering stage 4. Black staining is on all fragments.

BURIAL 268.—FN: A coffin outline and nails were in association with this burial. No other artifacts were present. The coffin was sized for an infant.

The occipital (3), both parietals (3), and four cervical vertebrae of an infant of undetermined age are present. Preservation of the remains corresponds to weathering stage 4. Black staining is on the bones.

BURIAL 269.—FN: Nails were the only associated artifacts.

Both temporals (2) and the following deciduous teeth, in occlusion, of a child are present: molars, maxillary right lateral incisor, mandibular canines, and mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 1.6 years.

BURIAL 270.—FN: A coffin outline and nails were in association with this burial. No other artifacts were present.

Both temporals (3) and teeth of an infant are present. Deciduous teeth in occlusion are the molars and maxillary right canine. Those not in occlusion are the maxillary central incisors.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 9 months to 1 year.

BURIAL 271.—FN: Coffin nails were in association with this burial. Pink red paint remnants were at the southern end (foot) of the coffin. No other artifacts were present. The coffin size suggests the burial was of a small infant.

The temporals (3) of a child of undetermined age are present. Their preservation corresponds to weathering stage 4.

BURIAL 272.—FN: This burial was directly above burial 273. Coffin nails were the only associated artifacts. The coffin was sized for a newborn infant.

No human remains were recovered.

BURIAL 273.—FN: Coffin nails were in association with this burial, which was directly below burial 272. No other artifacts were present.

The incomplete remains are of a child. Bones present are the frontal (2), both parietals (3), occipital (3), left (3) and right (2) temporals, mandible (2), second cervical vertebra, three other cervical vertebrae, middle thirds (3) of both femora, proximal (3) and middle (3) thirds of the right tibia, and middle third (3) of the left tibia.

All deciduous teeth are present, in occlusion, except the maxillary left canine, maxillary right lateral incisor, maxillary central incisors, mandibular left canine, mandibular left lateral incisor, and mandibular right central incisor.

Permanent teeth present, not in occlusion, from the maxillae are the right second molar, first molars, left second premolar, and first premolars, and from the mandible the left second molar, left first molar, right canine, and left central incisor.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all bones. Red staining is on the deciduous right mandibular molars.

The extent of dental calcification suggests an age at death of 4.5 to 5.1 years.

BURIAL 274.—FN: This burial was below burial 262 and above burial 278. A coffin outline and nails were the only associated artifacts. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 275.—FN: A coffin outline, nails, and wood were in association with this burial. Recovered wood appeared to be dark blue or gray on the side facing the interior of the coffin. One straight pin located above the cranium was the only other artifact recovered and may represent the fastening of a shroud (Beynon, 1989:76).

Human remains are the temporal bones (3), one cervical vertebra, and teeth of an infant. Deciduous teeth, in occlusion, are the second molars, incisors, maxillary left first molar, maxillary right canine, and mandibular right first molar. Permanent teeth are the maxillary right first molar, in occlusion, and mandibular left first molar, not in occlusion.

Preservation of the remains corresponds to weathering stage 3. A nail is adhered to the teeth.

The extent of dental formation suggests an age at death of about 1.6 years.

BURIAL 276.—FN: No grave or coffin was associated with the human remains. A cranium found beneath the north wall near the gate was the only evidence of a burial. No artifacts were present.

The cranial bones and teeth are of an adult male. Bones present are the frontal (3), both parietals (2), occipital (1), both temporals (2), left zygomatic (1), both maxillae (1), and both palatines (1).

Permanent teeth present, in occlusion, are all from the maxillae: the left third molar, left second molar, second premolars, and right lateral incisor. Permanent teeth lost antemortem (all maxillary) are the right molars, left first molar, and first premolars.

Carious lesions are on the occlusal surface of the maxillary left second molar and interproximal surface of the left second premolar.

One enamel defect is present: a linear horizontal groove on the maxillary left second premolar (3.9 mm).

Preservation of the remains corresponds to weathering stage 3.

Cranial suture closure, dental attrition, and dental loss suggest an age at death of 35 to 45 years. Likely male sex is suggested by cranial morphology.

BURIAL 277.—FN: Coffin nails were in association with this burial. No other artifacts were present.

The incomplete remains are of a young infant. Bones present are the occipital (3), left temporal (3), both zygomatics (1), mandible (2), right clavicle (2), right scapula (2), four cervical vertebrae, five thoracic vertebrae, both first ribs, three other left and right ribs, proximal (3) and middle thirds (2) of the right humerus, and middle third (3) of the left femur.

The deciduous mandibular left first molar is present but is not in occlusion.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 2 months.

BURIAL 278.—This burial was below burial 274 and above burial 279. A coffin outline and nails were associated with the burial. Tacks were recovered around the floor of the coffin, and a row of coffin nails ran down the center of the lid (Beynon, 1989:73). The coffin was sized for an infant.

No human remains were recovered.

BURIAL 279.—This burial was below burial 278 and above burial 284. A coffin outline, nails, and one straight pin, apparently copper, were the only associated artifacts. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 280.—FN: A coffin outline and nails were in association with this burial. A straight pin, apparently copper, was recovered from the coffin's eastern side, south of the left ulna. Several prehistoric lithics were also present, but the notes do not indicate where they were located.

The incomplete remains are of a child. Bones present are the frontal (1); left (2) and right (1) parietals; occipital (1); both tem-

porals (2); both zygomatics (1); both maxillae (1); both palatines (1); mandible (1); sacrum (2); left (2) and right (1) ilia; left (2) and right (1) ischia; left (1) and right (3) pubes; left (2) and right (1) patellae; vertebrae and rib fragments; proximal (2), middle (1), and distal (1) thirds of the left humerus; right humerus (2) minus the proximal epiphysis; right radius (1) minus the proximal epiphysis; middle third (3) of the left ulna; proximal epiphysis (2), proximal third (2), and remainder (1) of the right ulna; both femora (1); proximal epiphysis (1), proximal third (2), and remainder (1) of the diaphysis of the left tibia; distal epiphysis (2) and remainder (1) of the right tibia; proximal (2), middle (1), and distal (2) thirds of the left fibula; proximal, middle (1), and distal (2) thirds and distal epiphysis (2) of the right fibula; seven proximal hand phalanges; two middle hand phalanges; both calcanei; both tali; and other bone fragments.

Deciduous teeth present, in occlusion, are the second molars, maxillary right first molar, maxillary canines, and mandibular first molars.

Permanent teeth not in occlusion are the second molars, left second premolars, first premolars, and canines. Those in occlusion are the first molars and incisors.

Cariou lesions in deciduous teeth are on the interproximal surfaces of the maxillary left second molar and mandibular right first and second molars.

Preservation of the remains corresponds to weathering stage 1. Black staining is on all bones.

The extent of dental formation suggests an age at death of about 10 years.

BURIAL 281.—FN: Coffin nails were the only associated artifacts.

The incomplete remains are of an adult female. Bones present are the cranium (1); mandible (2); left clavicle (2); right scapula (2); both ilia (1); both ischia (3); both pubic bones (3); vertebrae fragments; proximal epiphysis (2) and proximal (2), middle (2), and distal (1) thirds and distal epiphysis (1) of the left humerus; proximal epiphysis (3), proximal (3) and middle (3) thirds, and remainder (2) of the right humerus; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the left radius; proximal (2), middle (2), and distal (1) thirds and distal epiphysis (1) of the right radius; distal epiphysis (3) and remainder (1) of the left ulna; proximal epiphysis (2) and diaphysis (1) of the right ulna; both femora (1); left tibia (1); proximal epiphysis (1) and proximal (1), middle (2), and distal (2) thirds of the right tibia; proximal epiphysis (1), proximal (1) and middle thirds (1), and remainder (2) of the left fibula; proximal (2), middle (2), and distal (3) thirds of the right fibula; both second metacarpals; right third, fourth, and fifth metacarpals; and four proximal hand phalanges.

Permanent teeth present, in occlusion, are all maxillary teeth except the right lateral incisor (lost antemortem) and all mandibular teeth except the left third, left second, and right first molars (all lost antemortem) and incisors.

Cariou lesions are on the smooth surface of the right maxillary third molar and large surface of the mandibular right third molar.

Enamel defects consist of linear horizontal grooves on the maxillary right second molar (1.7 mm) and right maxillary first molar (2.9 mm).

Preservation of the remains corresponds to weathering stage 1. Green staining is on the occipital. Black staining is on many of the bones.

Dental attrition and cranial suture closure suggest an age at death of 19 to 23 years. The morphology of the pelvis and general size characteristics of the remains suggest female sex.

BURIAL 282.—FN: No grave or coffin was associated with this burial. The cranium, found beneath the north wall near the gate, was the only evidence of a burial. No artifacts were present.

Fragments of an adult cranium are present. The only recognizable bone is the occipital (2). Preservation of the remains corresponds to weathering stage 3.

BURIAL 283.—FN: Coffin wood was in the northeast corner and part of the eastern side of the burial. A wood fragment was on the eastern side of the vertebral region. No other artifacts were present.

The incomplete remains are of an adult female. Bones present are the frontal (1); both parietals (1); occipital (1); left (1) and right (2) temporals; left zygomatic (1); mandible (2); sacrum (2); right ilium (3); both ischia (2); first two cervical vertebrae; one thoracic vertebra; five lumbar vertebrae; both humeri (2); left radius (1); proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the left ulna; proximal epiphysis (1) and proximal third (2) of the right ulna; both femora (2); both tibiae (2) minus the distal epiphyses; middle (2) and distal (1) thirds and distal epiphysis (1) of the left fibula; right lunate; one pisiform; both greater multangulars; right lesser multangular; right capitate; right hamate; right first metacarpal; three other metacarpals; one distal hand phalanx; left calcaneus; left talus; one second cuneiform; and one metatarsal of undetermined side.

No teeth are present; the mandibular right second premolar and mandibular three right molars were lost antemortem.

Preservation of the remains corresponds to weathering stage 3. Black staining is on all the remains.

Cranial suture closure, pelvic morphology, tooth loss, and arthritic change suggest an age at death of 55 to 70 years. Pelvic morphology and the general size of the bones suggest female sex.

BURIAL 284.—FN: This burial was the lowermost of five stacked burials (see burials 262, 274, 278, 279). Associated artifacts were a coffin outline and nails; no other artifacts were present. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 285.—FN: A coffin outline and nails were in association with this burial. An unidentified copper ornament recovered from the cranial region was the only other artifact present.

Human remains are the temporals (3), four cervical vertebrae, and deciduous maxillary left central incisor, not in occlusion, of an infant.

Preservation of the remains corresponds to weathering stage 4.

The extent of tooth formation suggests an age at death of newborn to 4 months.

BURIAL 286.—FN: A coffin outline, nails, and wood fragments were in association with this burial. No other artifacts were present.

Human remains are the following deciduous teeth, not in occlusion, of an infant: the maxillary right first molar, maxillary incisors, mandibular left first molar, mandibular left incisors, and mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the teeth.

The extent of dental formation suggests an age at death of 3 to 5 months.

BURIAL 287.—FN: a coffin outline and nails were associated with this burial. No other artifacts were recovered.

Fragments of an adult-sized thoracic vertebra and two left ribs are present. Preservation of the remains corresponds to weathering stage 4. Black staining is on all fragments.

BURIAL 288.—FN: Coffin nails were the only associated artifacts. Wood staining was along the southern half of the western and eastern walls of the burial.

Teeth, the occipital (3), and a petrous portion of a temporal (3) of an infant are present. Deciduous teeth, not in occlusion, are the molars and left mandibular lateral incisor. The permanent mandibular left first molar is present but is not in occlusion.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 1.3 years.

BURIAL 289.—FN: Coffin nails were the only associated artifacts.

Bones present are three left and two right ribs and the middle thirds of both tibiae (3) of a child.

Deciduous teeth present, not in occlusion, are the maxillary right lateral incisor, mandibular second molars, and mandibular right canine.

Permanent teeth present, not in occlusion, are the maxillary right canine, mandibular first molars, mandibular canines, and mandibular incisors.

Preservation of the remains corresponds to weathering stage 4. Some wood and a pin, apparently copper, are also present.

The extent of dental formation suggests an age at death of about 2.8 years.

BURIAL 290.—FN: A coffin outline and nails were in association with the burial. No other artifacts were present. The coffin appears to be sized for an infant or small child.

No human remains were recovered.

BURIAL 291.—FN: Burial 291 was below burial 265. Associated with it were a coffin outline, nails, and wood fragments. Other artifacts recovered were copper escutcheons with coffin wood underneath. The coffin was sized for a child about 5 years old.

No human remains were recovered.

BURIAL 292.—FN: A coffin outline and wood were in association with this burial.

The skeletal fragments are of an infant. Bones present are the occipital (3), both temporals (3), left scapula (3), left ilium (3), three cervical vertebrae, and one left rib.

Preservation of the remains corresponds to weathering stage 3.

The extent of bone formation suggests the child was newborn.

BURIAL 293.—FN: Coffin nails, wood, and evidence of white paint were in association with this burial. No other artifacts were present.

Three cranium fragments and teeth of an infant are present. Deciduous teeth, in occlusion, are the second molars, maxillary first molars, maxillary right canine, mandibular left first molar, and mandibular canines. Permanent teeth, not in occlusion, are the maxillary first molars, maxillary left central incisor, mandibular right first molar, mandibular right lateral incisor, and mandibular central incisors.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all the bones.

The extent of dental formation suggests an age at death of about 1.6 years.

BURIAL 294.—FN: A coffin outline and a number of coffin nails, some recovered with wood adhering to them, were associated with this burial. No other artifacts were present.

The incomplete remains are of a child. Bone fragments are the frontal (3), both parietals (2), occipital (2), both temporals (1), both maxillae (1), both palatines (1), mandible (1), vertebrae fragments, proximal and middle thirds (2) of the right humerus, diaphysis (2) of the left femur, proximal epiphysis and diaphysis (2) of the right femur, proximal (2) and middle thirds (2) of the left tibia, and middle third (3) of the right tibia.

All deciduous teeth are present, in occlusion, except the right mandibular central incisor.

Permanent teeth present, not in occlusion, from the maxillae are the right lateral and left central incisors, and from the mandible the left second molar, first molars, left first premolar, right canine, and central incisors.

Enamel defects in the deciduous teeth consist of linear horizontal grooves in the maxillary left (2.1 mm) and right (2.3 mm) central incisors and discrete-boundary hypocalcification in the maxillary right second molars (~2.9 mm).

Preservation of the remains corresponds to weathering stage 3. Black staining is on all the remains; apparent rust is on one cranial fragment.

The extent of dental formation suggests an age at death of 2.9 to 3.7 years.

BURIAL 295.—FN: Coffin wood and nails were in association with this burial. A small area of staining from the coffin lid was in the middle of the eastern side of the coffin.

Remains are cranium fragments, middle thirds (3) of the left femur and tibia, and teeth of an infant.

Deciduous teeth present, not in occlusion, are the maxillary right second molar and mandibular left second molar. The deciduous mandibular left first molar is in occlusion.

Permanent teeth, not in occlusion, are the maxillary right central incisor, mandibular left first molar, and mandibular right incisors.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all bones.

The extent of dental formation suggests an age at death of about 1.4 years.

BURIAL 296.—FN: Coffin wood and nails were the only associated artifacts. The coffin was sized for an infant.

Several cranium fragments, likely from an infant, are present.

BURIAL 297.—FN: Coffin nails and pink paint found in the soil surrounding the cranium were in association with the human remains. No other artifacts were present.

The incomplete remains are of a child. Bones present are the frontal (2), both parietals (2), occipital (2), both temporals (1), both maxillae (1), mandible (2), second cervical vertebra, and middle third (3) of the right femur.

Deciduous teeth, in occlusion, are the maxillary molars and all mandibular teeth.

Permanent teeth, not in occlusion, from the maxillae are the right second molar, first molars, left first premolar, left canine, left incisors, and central incisors, and from the mandible the left second molar, first molars, canines, and incisors.

Cariou lesions are on the occlusal surfaces of the deciduous left molars.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all the remains.

The extent of dental formation suggests an age at death of 2.9 to 3.9 years.

BURIAL 298.—FN: Coffin nails and yellow paint (on coffin walls) were in association with this burial. No other artifacts were recovered.

The incomplete remains are of an infant. Bones present are the occipital (3), left (2) and right (1) temporals, mandible (3), right clavicle (3), right scapula (2), and vertebrae fragments.

All deciduous teeth are present, in occlusion, except the maxillary left canine and maxillary right lateral incisor.

Permanent teeth present, not in occlusion, from the maxillae are the first molars, left canine, and central incisors, and from the mandible the first molars, right canine, and incisors.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

The extent of dental formation suggests an age at death of about 1.7 years.

BURIAL 299.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

The incomplete remains are of an infant. Bones present are the temporals (1); right zygomatic (1); mandible (2); left ilium (2); vertebrae and rib fragments; proximal (2) and middle (2) thirds of the right humerus; proximal (3), middle (2), and distal (3) thirds of the left femur; proximal (2), middle (1), and distal (2) thirds of the right femur; and proximal (2) and middle (3) thirds of the right tibia.

Deciduous teeth in occlusion are the central incisors, maxillary right lateral incisor, and mandibular lateral incisors; those not in occlusion are the second molars, canines, maxillary right first molar, and mandibular first molars.

Permanent teeth present, not in occlusion, are the maxillary left first molar, maxillary central incisors, mandibular right first molar, and mandibular left canine.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all the remains.

The extent of dental formation suggests an age at death of 1.1 years.

BURIAL 300.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

Both temporals (2) and teeth of a child are present. Teeth in occlusion are the deciduous maxillary left molars. The permanent mandibular left first molar is present but is not in occlusion.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all the remains.

The extent of dental formation suggests an age at death of 6 to 6.3 years.

BURIAL 301.—FN: A coffin outline, nails, and fragments of pink paint were in association with this burial. No other artifacts were present.

Remains are vertebrae fragments and teeth of an infant. All deciduous teeth are present, not in occlusion, except the mandibular right second molar, right canine, and right central incisor.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of about 6 months.

BURIAL 302.—FN: Coffin wood and nails were in association with this burial. Other artifacts recovered include one straight pin.

The right temporal (2), with black staining, of a newborn is present. Its preservation corresponds to weathering stage 5.

BURIAL 303.—FN: Coffin nails and fragments of a green blue cloth recovered from around the cranium were in association with this burial.

The incomplete remains are of a young child. Bones present are the temporals (2); left ilium (3); vertebrae fragments; proximal (3), middle (2), and distal (3) thirds of the femora; middle (3) and distal (2) thirds of the left tibia; and middle third (3) of the right tibia.

All deciduous teeth are present, in occlusion, except the maxillary right lateral incisor and mandibular right central incisor.

Permanent teeth present, not in occlusion, are the first molars, canines, incisors, maxillary right first premolar, and mandibular left first premolar.

Three carious lesions are on the occlusal surface of the deciduous mandibular right second molar.

Enamel defects in the deciduous dentition consist of linear horizontal grooves and linear horizontal pits. Grooves are in three mandibular teeth, the right second molar (0.9 mm) and the left (0.9 mm) and right (1.2 mm) canines. Pits are in the maxillary left (0.8 mm) and right (1.6 mm) second molars. All these defects formed at about the age of 6 months.

Enamel defects in the permanent dentition consist of linear horizontal grooves in the mandibular left and right (two defects) lateral incisors; linear horizontal pits in the maxillary left (8.8 mm) and right (8.8 mm) central incisors and mandibular incisors; nonlinear arrays of pits in the maxillary first molars, maxillary canines, and mandibular first molars; and a single pit in the max-

illary left lateral incisor. (Distances from CEJ not listed were unavailable.)

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 2.9 to 3.6 years.

BURIAL 304.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

Cranium fragments and deciduous maxillary teeth of an infant are present. Teeth in occlusion are the right lateral incisor and central incisors. Those not in occlusion are the right second molar and first molars.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all the remains.

The extent of dental formation suggests an age at death of about 2 months.

BURIAL 305.—FN: An empty grave outline represented this burial; no artifacts or human remains were present.

BURIAL 306.—FN: Coffin nails and pink paint were the only associated artifacts.

The incomplete remains are of a young child. Bones present are the frontal (2); both parietals (2); occipital (2); both temporals (2); left (3) and right (2) maxillae; mandible (1); both ilia (2); vertebrae and rib fragments; proximal and middle thirds (2) of the left humerus; proximal epiphysis (2) and proximal and middle thirds (2) of the left femur; proximal (2), middle (1), and distal (3) thirds of the right femur; proximal and middle thirds of the tibiae (2); proximal thirds (2) of the fibulae; left calcaneus; and left talus.

All deciduous teeth are present except the maxillary left central incisor.

Permanent teeth, not in occlusion, are the four first molars and the maxillary central incisors.

A carious lesion is on the interproximal surface of the right central deciduous incisor.

Preservation of the remains corresponds to weathering stage 2.

The extent of dental formation suggests an age at death of about 3.6 years.

BURIAL 307.—FN: Coffin nails, some with attached wood, were in association with this burial.

Both temporals (2) and teeth of an infant are present. All deciduous teeth are present, in occlusion, except the maxillary right lateral incisor, mandibular left canine, mandibular left lateral incisor, and mandibular central incisors.

The permanent mandibular left first molar is present but is not in occlusion.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all bones.

The extent of dental formation suggests an age at death of 6 to 9 months.

BURIAL 308.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

The right temporal (2) of a newborn is present; its preservation corresponds to weathering stage 4. Black staining is on the bone.

BURIAL 309.—FN: A coffin outline, nails, and wood were associated with this burial. The coffin wood was concentrated in

the northern and southern sections of the coffin. One prehistoric lithic flake was recovered from the burial soil. No other artifacts were present. The coffin was sized for a young child.

No human remains were recovered.

BURIAL 310.—FN: Coffin nails, wood fragments and three fragments of iron wire recovered from around the cranium, possibly the remains of a bonnet (Beynon, 1989:80), were in association with this burial. No other artifacts were present.

The incomplete remains are of a child. Bones present are the frontal (2); both parietals (1); occipital (2); both temporals (2); proximal (2) and middle (2) thirds of the left femur; proximal (3), middle (2), and distal (3) thirds of the right femur; middle third (2) of the left tibia; and a calcaneus (3).

Deciduous teeth present, in occlusion, are the left second molars, maxillary left first molar, and mandibular right second molar.

Permanent teeth in occlusion are the first molars, left incisors, and right maxillary central incisor. Those not in occlusion from the maxillae are the left second molar, left first premolar, and right canine, and from the mandible the second molars, first premolars, and canines.

Carious lesions are on the interproximal surfaces of the deciduous maxillary left first (two lesions) and left second molars and the occlusal surfaces of the permanent mandibular right (two lesions) and left first molars.

Enamel defects in the permanent dentition consist of linear horizontal grooves on the maxillary right canine (4.7 mm); linear horizontal pits on the maxillary right first molar (5.8 mm), maxillary right canine (7.3 mm), maxillary left central incisor (6.6 mm), and mandibular right canine (n/a); and nonlinear arrays of pits on the maxillary left second molar (n/a) and mandibular first molars (n/a).

Preservation of the remains corresponds to weathering stage 4. Black staining is on the bones.

The extent of dental formation suggests an age at death of 7 to 9.6 years.

BURIAL 311.—FN: A coffin outline and nails were in association with this burial. A sample of pink paint was taken from the southern end of the coffin outline. No other artifacts were present.

Human remains are fragments of vertebrae and the deciduous maxillary left lateral incisor, not in occlusion.

Preservation of the remains corresponds to weathering stage 3.

The extent of tooth formation suggests a fetal age at death of 7 to 9 lunar months (newborn).

BURIAL 312.—FN: Coffin nails and one hair pin recovered from the cranial region were the only artifacts associated with this burial. Light brown hair was present.

The incomplete remains of a likely female adolescent. Bones present are the frontal (2), both temporals (2), right zygomatic (2), mandible (2), right ilium (2), and diaphyses (2) of all long bones.

Permanent teeth in occlusion are all maxillary teeth except the right second premolar (the left first molar is damaged) and all mandibular teeth except the left third molar, left first molar, and,

lost antemortem, the second premolars. The right third molar is present but is not in occlusion.

Carious lesions are on the interproximal surfaces of the following maxillary teeth: left second molar, right first molar, right first premolar, and left incisors; large surfaces of the maxillary left first molar and mandibular right second molar; and occlusal surface of the mandibular left second molar.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental development and epiphyseal fusion suggests an age at death of about 15 years.

BURIAL 313.—FN: Coffin nails were the only artifacts present with this burial. The coffin was sized for a small child.

A left temporal (3) of an infant or small child is present. Its preservation corresponds to weathering stage 5. Black staining is on the bone.

BURIAL 314.—FN: Coffin nails were the only associated artifacts.

The incomplete remains are of an infant. Bones present are the frontal (2), occipital (2), right temporal (2), mandible (2), fragments of vertebrae and ribs, proximal third (2) of the left humerus, proximal and middle thirds (2) of the left femur, and middle third of the right femur.

Deciduous teeth present, not in occlusion, are the second molars, maxillary first molars, maxillary central incisors, mandibular left lateral incisor, and mandibular right central incisor.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 6 months.

BURIAL 315.—FN: Coffin wood formed the perimeter of the burial and was also in its southern portion and in the vertebral region of the human remains. Both plain and ornamental nails were also recovered.

The incomplete remains are of an adult, likely male. Bones present are the frontal (1), both parietals (1), occipital (1), both temporals (2), mandible (2), left clavicle (3), left ilium (3), middle thirds (2) of both humeri, proximal (2) and middle thirds (2) of the right radius, proximal third (2) of the left ulna, and diaphyses (2) of the femora and tibiae.

Permanent teeth present, in occlusion, from the maxillae are the third molars, left first molar, right first premolar, left canine, right lateral incisor, and left central incisor, and from the mandible the left second molar, left first molar, premolars, canines, and right lateral incisor.

Carious lesions are on the interproximal surfaces of the maxillary left third molar and maxillary right first premolar (two lesions) and the occlusal surface of the maxillary left first molar.

Preservation of the remains corresponds to weathering stage 4.

Cranial suture closure and dental attrition suggest an age at death of 25 to 35 years. General bone size suggests likely male sex.

BURIAL 316.—FN: Coffin wood (apparently two types) and fragments of copper and fabric rickrack were along the perimeter of the coffin. A variety of nails were also present: plain (some of which still had intact wood), white-topped (along the coffin sides), and with escutcheons (on the interior of the cof-

fin). White-topped nails were also found in association with three ornamental metal handles, on the northwest, northeast, and southeast corners. These handle nails were intact on the inside of the handles. Other metal artifacts were tacks and a rectangular plate, possibly of pewter, that was recovered from the middle of the rib cage. Finally, six glass buttons were found: three white glass buttons, each 7 cm in diameter, recovered in a diagonal line across the chest; and three white glass buttons with blue rims, each about 10 cm in diameter, recovered from the innominate region.

The incomplete remains are of an adult male. Bones present are cranium fragments; the mandible (2); both scapulae (3); left ilium (2); right acetabulum (3); diaphyses (2) of the humeri; proximal (2), middle (1), and distal (2) thirds of the left radius; diaphysis (2) of the left ulna; and proximal epiphyses (1); diaphyses (2) of the femora; and diaphyses (2) of the tibiae.

Permanent teeth present, in occlusion, from the maxillae are the right third molar, right first molar, left second premolar, right first premolar, canines, right lateral incisor, and central incisors, and from the mandible all teeth except the third molars and left central incisor. The left lateral incisor is damaged.

One carious lesion is on the interproximal surface of the maxillary left canine.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation and dental attrition suggest an age at death of 30 to 40 years. Bone size suggests male sex.

BURIAL 317.—FN: This burial had been disturbed, and no coffin or coffin outline was found; however, nails and a porcelain button found near a fabric fragment were on the eastern side of the burial. No other artifacts were present.

The incomplete remains are of an adult, likely male. Bones present are the frontal (3); both parietals (2); occipital (2); right temporal (2); mandible (2); both scapulae (3); left ilium (2); left ischium (2); left pubis (2); left patella (3); one lumbar vertebra; two left ribs; proximal epiphyses (3) and remainder of the humeri; distal epiphysis (3) and remainder (2) of the left radius; proximal epiphysis (3) and proximal (2), middle (2), and distal (3) thirds and distal epiphysis (3) of the right radius; proximal epiphysis (3), diaphysis (2), and distal epiphysis (3) of the left ulna; proximal epiphysis (3) and proximal (2), middle (2), and distal (3) thirds and the distal epiphysis (3) of the right ulna; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the left femur; right femur (2); and epiphyses (3) and diaphyses (2) of the tibiae.

Permanent teeth present, in occlusion, from the maxillae are the right first and third molars, left second premolar, right first premolar, both canines, central incisors, and left lateral incisor (damaged), and from the mandible the second and third molars, left first molar, left premolars, right first premolar (damaged), left canine, right canine (damaged), and incisors (damaged).

One carious lesion is on the interproximal surface of the maxillary left canine.

Enamel defects, all on maxillary teeth, consist of linear horizontal grooves on the left (two defects, 4.6 mm, 3.6 mm) and right (4.2 mm) canines and left lateral incisor (two defects, 3.6

mm, 4.7 mm), all of which likely formed between the ages of 2 and 3 years, and a linear vertical groove on the right canine (~3.2 mm).

Preservation of the remains corresponds to weathering stage 4. Brown staining (possibly rust) is on a parietal. Dark brown cloth is in the area of the right lower arm. A notch in the mandibular left canine and first premolar was possibly created by pipe wear.

The extent of dental attrition suggests an age at death of 23 to 40 years. The large size of the bones suggests male sex.

BURIAL 318.—FN: This burial was disturbed below the greater trochanter region of the femora. A coffin outline, wood fragments, and ornamental brass screws were in association with this burial. Glass buttons, iron buttons, and cloth fragments were also recovered.

The incomplete remains are of an adult male. Bones present are the frontal (2); right parietal (2); occipital (1); both temporals (2); mandible (2); diaphysis (2) of the left humerus; proximal (2), middle (1), and distal (2) thirds of the right humerus; left (2) and right (3) diaphysis of the radii and ulnae; and proximal epiphyses (2) and proximal thirds (2) of the femora.

All permanent teeth are present, in occlusion, except the maxillary left second and third molars and mandibular left lateral incisor.

Carious lesions are on the occlusal surfaces of the maxillary right third molar and mandibular left third molar.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the maxillary left lateral incisor and canine.

Cranial suture closure and dental attrition suggest an age at death of 25 to 30 years. The large bone size suggests male sex.

BURIAL 319.—FN: A grave outline was present but no coffin outline, artifacts, or human remains. Beynon (1989:83) suggested this may indicate the grave was moved.

BURIAL 320.—FN: Nails were the only associated artifacts.

The incomplete remains are of an adult male. Bones present are the temporals (1); maxillae (2); palatines (3); mandible (2); both clavicles (2); manubrium; both ischia (3); both patellae (2); rib fragments; nine thoracic vertebrae; three lumbar vertebrae; proximal epiphysis (1) and remainder (2) of the left humerus; right humerus (2) minus the proximal epiphysis; left radius (2); right radius (2) minus the distal third and distal epiphysis; proximal epiphysis (2) and proximal (1), middle (2), and distal (3) thirds of the left ulna; proximal epiphysis (2) and proximal (2) and middle (2) thirds of the right ulna; proximal epiphysis (2) and diaphysis (1) of the left femur; distal epiphysis (2) and diaphysis (2) of the right femur; distal epiphysis (1) and diaphysis (1) of the left tibia; proximal (1), middle (1), and distal (2) thirds of the right tibia; proximal epiphysis (1) and proximal (1), middle (2), and distal (2) thirds of the left fibula; middle third (2) of the right fibula; left greater multangular; left capitate; left tarsal bones; right calcaneus; right cuneiforms; right first metatarsal; and three left and two right metatarsals, side undetermined.

Permanent teeth present, in occlusion, from the maxillae are the third molars, right second premolar (damaged), right first premolar, and right incisors and from the mandible the left third

molar, left second molar, premolars, canines (damaged), and lateral incisors (damaged). The mandibular first molars were lost antemortem.

Carious lesions are on the occlusal surface of the maxillary right third molar and mandibular right second molar; interproximal surfaces of the maxillary left third molar, maxillary right first premolar, mandibular left second molar, and mandibular left second premolar; smooth surface of the maxillary right third molar and maxillary right lateral incisor; and large surface of the maxillary right second premolar.

Preservation of the remains corresponds to weathering stage 5.

Cranial suture closure and dental attrition suggest an age at death of 23 to 28 years. The very robust skeletal morphology suggests male sex.

Schmorl's depressions are on the thoracic and lumbar centra. On the superior surface of a vertebral centrum near the ventral surface is a depression measuring 17 × 14 mm and about 4.6 mm deep. This centrum also displays compression and osteophytosis.

BURIAL 321.—FN: A coffin outline, nails, and wood fragments were in association with this burial. The wood fragments were along the coffin outline. Also recovered were four coffin handles, rickrack, a sherd of blue and white porcelain, and a gold coin dated to 1853, which was recovered from the thoracic region (Beynon, 1989:86).

The incomplete remains are of an adult, likely female. Present are the bones of the cranial vault (1); right zygomatic (1); both maxillae (3); mandible (1); both clavicles (1); manubrium (1); sacrum (3); both scapulae (3); left (2) and right (1) ilia and ischia; both patellae; all cervical vertebrae; 11 thoracic vertebrae; five lumbar vertebrae; rib fragments; humeri (1); radii (1); ulnae (1); left femur (1); proximal epiphysis (1) of the right femur; tibiae (1); fibulae (1) minus the proximal epiphyses; both hand naviculars; both lunates; one triquetral; both greater multangulars; both lesser multangulars; both capitates; both hamates; all metacarpals; 10 proximal hand phalanges; eight middle hand phalanges; five distal hand phalanges; all tarsal bones; all metatarsals; seven proximal foot phalanges; three middle foot phalanges; and one distal foot phalanx.

All permanent teeth were lost antemortem except the maxillary third molars (no observation possible) and maxillary right canine (present, in occlusion).

A carious lesion is on the interproximal surface of the canine.

Preservation of the remains corresponds to weathering stage 2. Green staining is on the right clavicle, right radius, left ulna, and left humerus.

Cranial suture closure and tooth loss suggest an age at death of 45 to 50 years. Morphology of the pelvis and other bones suggests likely female sex.

BURIAL 322.—FN: A coffin outline, with copper rickrack still attached to the wood at its perimeter, coffin nails, fabric fragments, and buttons were recovered in association with the human remains.

The incomplete remains are of an adult male. Present are the bones of the cranial vault (1); both zygomatics (1); mandible (1); both clavicles (1); manubrium (2); gladiolus (1); both scap-

ulae (2); both ilia (3); both ischia (2); both pubic bones (3); one patella, side undetermined; all cervical vertebrae; nine thoracic vertebrae; five lumbar vertebrae; right first rib; three other ribs; distal epiphysis (2) and remainder (1) of the left humerus; right humerus (1); proximal (2), middle (1), and distal (2) thirds and distal epiphysis (2) of the left radius; proximal epiphysis (2) and remainder (1) of the right radius; proximal epiphysis (3) and proximal (2), middle (1), and distal (2) thirds of the left ulna; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the right ulna; proximal epiphyses (1) and proximal (2), middle (1), and distal (1) thirds and distal epiphyses (2) of the femora; proximal epiphysis (3) and proximal (2), middle (1), and distal (3) thirds of the left tibia; proximal epiphysis (2) and proximal (1), middle (2), and distal (2) thirds of the right tibia; middle (3) and distal (3) thirds of the right fibula; both hand naviculars; left lunate; left (2) and right (1) hamate; right third metacarpal; two other metacarpals; four proximal hand phalanges; four middle hand phalanges; both calcanei; left talus; both foot naviculars; and left fifth metatarsal.

All permanent teeth are present, in occlusion, except the maxillary left first premolar and mandibular left first molar, lost antemortem.

Cariou lesions are on the occlusal surfaces of the maxillary second and third molars (two lesions on each) and the following mandibular teeth: third molars, right second premolar, and right first and second molars; interproximal surfaces of the maxillary left first and third molars, maxillary right first premolar, maxillary lateral incisors, and the following mandibular teeth: right second molar, both second premolars, left canine, and left lateral incisor; smooth surfaces of the maxillary left central incisor and mandibular right central incisor; and large surface of the mandibular left second molar.

Enamel defects consist of linear horizontal grooves on the maxillary left central incisor (3.4 mm) and discrete-boundary hypocalcification on the maxillary right third molar (4 mm) and maxillary left third molar (4 mm).

Preservation of the remains corresponds to weathering stage 2. Green staining is on the left frontal. Black stains and orange stains (likely rust) are present as well.

Epiphyseal closure, cranial suture closure, and dental attrition suggest an age at death of 20 to 24 years. Pelvic and general skeletal morphology suggest male sex.

The teeth display moderate hypercementosis.

BURIAL 323.—FN: Coffin nails and a fragment of wood were in association with this burial. No other artifacts were recovered.

The right temporal (3) and teeth of an infant are present. Deciduous teeth, not in occlusion, are the molars, maxillary left canine, mandibular canines, and mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of 6 to 9 months.

BURIAL 324a.—FN: Coffin nails, wood fragments, and miscellaneous coffin ornaments (some with adhering fabric) were in

association with this burial. A button was recovered from the thoracic region.

The incomplete remains are of an adult female. Bones present are the frontal (2); both parietals (2); occipital (3); both temporals (2); right zygomatic (2); mandible (2); right clavicle (3); sacrum (2); both scapulae (3); both ilia (2); both ischia (3); second cervical vertebra; two other cervical vertebrae; seven thoracic vertebrae; five lumbar vertebrae; proximal epiphysis (3) of the right humerus; two other humerus fragments; proximal epiphysis (3) and proximal third (2) of the left ulna; proximal third (2) of the right ulna; proximal epiphysis (3) and proximal (3), middle (1), and distal (2) thirds and distal epiphysis (2) of the left femur; proximal epiphysis (1) and proximal (2), middle (1), and distal (2) thirds and distal epiphysis (3) of the right femur; proximal (2) and middle (1) thirds of the left tibia; proximal (2), middle (1), and distal (3) thirds of the right tibia; and middle thirds of the left (3) and right (2) fibulae.

Permanent teeth present, in occlusion, from the maxillae are the left molars (damaged), right third molar, right second molar, right second premolar, and canines, and from the mandible the left premolars, right first premolar, left canine, right canine (damaged), and mandibular incisors. The maxillary right first molar, maxillary right first premolar, mandibular molars, and mandibular right second premolar were lost antemortem.

Cariou lesions are on the occlusal surface of the maxillary right third molar (two lesions); interproximal surfaces of the maxillary right third molar, maxillary left canine, and the following mandibular teeth: left second premolar (two lesions), left first premolar, left canine, and right lateral incisor; root surfaces of the maxillary right second molar and maxillary right second premolar; and large surfaces of the maxillary left molars, mandibular right first premolar, mandibular canine, and mandibular left incisors. An alveolar abscess is in the buccal or labial alveolar channel of the mandibular right first premolar.

Enamel defects consist of linear horizontal grooves in the mandibular right canine (two defects, 2.9 mm, 2.2 mm).

Preservation of the remains corresponds to weathering stage 5.

Cranial suture closure and the lack of osteophytosis suggest an age at death of 25 to 30 years. Pelvic and general skeletal morphology suggest female sex.

BURIAL 324b.—Human remains present are an occipital fragment from another adult and the following permanent teeth, in occlusion: the maxillary left third molar, maxillary right second molar, maxillary right first molar, maxillary left lateral incisor, and mandibular canines.

Cariou lesions are on the interproximal surfaces of the maxillary left lateral incisor (two lesions), smooth surfaces of the mandibular canines, and large surfaces of the maxillary right first and second molars.

Preservation of the remains corresponds to weathering stage 5.

Dental attrition suggests an age at death of 20 to 40 years.

BURIAL 325.—FN: Artifacts in association with the human remains were coffin nails, a strip of wood with a leather-like material, a cloth fragment, a hook and eye, and miscellaneous coffin ornaments that fell along the center line of the vertebra.

The incomplete remains are of an adult. Bones present are the frontal (2); left parietal (2); occipital (2); both temporals (2); mandible (2); first two cervical vertebrae; one other cervical vertebra; two thoracic vertebrae; one lumbar vertebra; proximal third (3) of the left humerus; proximal epiphysis (3) and middle third (3) of the left radius; and proximal epiphysis (2) and distal third (2) of the left ulna.

Permanent teeth present, in occlusion (all maxillary), are the left third molar, left first premolar, and left central incisor. The maxillary left second premolar, mandibular left molars, and mandibular right second and third molars were lost antemortem.

One carious lesion is on the interproximal surface of the maxillary left first premolar.

Preservation of the remains corresponds to weathering stage 5. Green staining is on the arches of the thoracic and lumbar vertebrae.

Cranial suture closure, dental attrition, and dental loss suggest an age at death of 40 to 55 years. No reliable estimate of sex can be made.

BURIAL 326.—FN: Artifacts found in association with this burial were plain and ornamental nails and one porcelain button recovered from the cervical region.

The incomplete remains are of a young adult, likely female. Bones present are the frontal (2); left parietal (1); occipital (2); both temporals (2); both maxillae (2); mandible (1); sacrum (3); left scapula (1); left and (3) right ilia (2); left patella (3); first two cervical vertebrae; two thoracic vertebrae; three lumbar vertebrae; proximal epiphysis (3), proximal third (2), and remainder (1) of the left humerus; proximal epiphysis (1), proximal (1) and middle (2) thirds, and remainder (2) of the right humerus; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (3) of the left radius; proximal epiphysis (1) and proximal (1) and middle (2) thirds of the right radius; proximal epiphysis (1) and proximal (1) and middle (2) thirds of the left ulna; proximal epiphysis (1) and proximal third (2) of the right ulna; proximal epiphysis (1), proximal third (2), and remainder of the diaphysis (1) of the left femur; distal epiphysis (2) and remainder (1) of the right femur; proximal third (3) and remainder (2) of the diaphysis of the left tibia; proximal epiphysis (3) and proximal (2), middle (2), and distal (3) thirds of the right tibia; proximal third (3) of the left fibula; left calcaneus; and both tali.

Permanent teeth in occlusion are the third molars, premolars, and lateral incisors; from the maxillae the first molars, right canine, and left central incisor; and from the mandible the second molars, left first molar, canines, and right central incisor. The permanent maxillary left canine is present but is not in occlusion. The mandibular right first molar was lost antemortem.

Carious lesions are on the occlusal surface of the mandibular right second molar and interproximal surfaces of the maxillary left third molar and maxillary second premolars. An alveolar abscess is associated with the maxillary right first molar.

The maxillary left canine is fully formed but rotated and not erupted (Figures 49, 50). The maxillary second molars are congenitally absent.



FIGURE 49.—Rotated maxillary left canine, burial 326.



FIGURE 50.—Radiograph of maxillary left canine, burial 326.

Preservation of the remains corresponds to weathering stage 5.

The extent of epiphyseal union and dental formation suggests an age at death of about 18.5 years. Skeletal morphology suggests likely female sex.

BURIAL 327.—FN: In association with this burial were plain and ornamental nails, rickrack and fabric, a small hook and eye,

and evidence of what may be white paint. The fabric and rickrack were layered between wood (i.e., wood, fabric, rickrack, wood).

The incomplete remains are of a subadult. Bones present are the temporals (3), mandible (3), both scapulae (3), both ischia (3), middle thirds (3) of the humeri, proximal epiphysis (3) of the left radius, proximal epiphysis (3) and proximal third (3) of the left ulna, proximal epiphyses (3) and middle thirds (3) of the femora, and middle thirds (3) of the tibiae.

Permanent teeth in occlusion are all maxillary teeth except the third molars and the following mandibular teeth: second molars, left first molar, premolars, canines, right lateral incisor, and left central incisor. The mandibular third molars were present but were not in occlusion.

Cariou lesions are on the interproximal surfaces of the mandibular left second premolar and the following maxillary teeth: first molars, left second premolar, right first premolar, right lateral incisor, and central incisors.

Enamel defects consist of linear enamel grooves in the maxillary left (5.0 mm) and right (two defects, 2.8 mm, 5.0 mm) first premolars and maxillary right canine (two defects, 4.1 mm, 2.2 mm).

Preservation of the remains corresponds to weathering stage 5. Black staining is on the right radius.

The extent of dental formation suggests an age at death of about 12.8 years.

BURIAL 328.—FN: In association with this burial were coffin nails, wood fragments, white paint, and porcelain buttons.

The incomplete remains are of an adult male. Bones present are those of the cranial vault (1); mandible (1); both clavicles (1); manubrium (2); sacrum (3); both scapulae (1); left (2) and right (1) ilia; left ischium (2); right patella (1); first two cervical vertebrae; four other cervical vertebrae; 10 thoracic vertebrae; five lumbar vertebrae; left first rib; six left and eight right other ribs; right humerus (1); radii (1); ulnae (1); femora (1); distal epiphysis (2) and remainder (1) of the left tibia; right tibia (1); proximal (3), middle (1), and distal (1) thirds and distal epiphysis (2) of the left fibula; proximal third (3) and remainder of the diaphysis (1) and distal epiphysis (1) of the right fibula; both hand naviculars; left lunate; both greater multangulars; both lesser multangulars; both capitates; all metacarpals except the right first; nine proximal hand phalanges; seven middle hand phalanges; one distal hand phalanx; right calcaneus; both tali; right cuboid; both foot naviculars; four metatarsals, side and digit unknown; and one proximal foot phalanx.

Permanent teeth present, in occlusion, are from the mandible: the left third molar, right second molar, first premolars, canines, and incisors. The other mandibular permanent teeth were lost antemortem.

One carious lesion is on the occlusal surface of the mandibular right second molar.

Enamel defects consist of linear horizontal grooves on the left canine (two defects, 4.0 mm, 4.6 mm).

Preservation of the remains corresponds to weathering stage 2. White spots are on the right radius, right humerus, and right femur. Apparent rust stains are on the left mandible.

Dental attrition, dental loss, arthritic changes, and cranial suture closure suggest an age at death of 40 to 45 years. Pelvic and general skeletal morphology suggest male sex.

Maximum femur length is 48.7 cm, suggesting a living stature of about 177 cm (5 ft 9.7 in).

Lipping and porosity are on most joint surfaces. Schmorl's depressions and osteophytes are on the lumbar and thoracic vertebrae. Rhomboid fossae are on both clavicles. The left humerus displays flattening of the medial epicondyle. Enthesophytes are on the radial tuberosity of both radii, the proximal ends of the ulnae, and the patellae. Evidence of abnormal periosteal bone apposition, active at the time of death, is on the medial surface of the left tibia, especially the distal half of the bone and small areas of the posterior surface. Similar deposits are on the medial and posterior surfaces of the left fibula.

BURIAL 329.—FN: A coffin outline, plain and decorated nails, and a decorative handle were in association with this burial. No other artifacts were present.

The left ulna, minus the styloid process, of an adult of undetermined sex and specific age is present. Its preservation corresponds to weathering stage 3.

BURIAL 330.—FN: Coffin wood, a coffin handle decorated with two cherubs, three types of buttons, cloth fragments, and copper rickrack found along portions of the top and right side of the coffin were recovered from this burial.

The incomplete remains are of an adult female. Bones present are the parietals (2), occipital (2), left temporal (2), right clavicle (2), right scapula (2), three left ribs and additional rib fragments, right humerus (1), proximal epiphysis (2) and proximal third (1) of the right radius, and proximal epiphysis (1) and proximal third (1) of the right ulna.

Preservation of the remains corresponds to weathering stage 3.

Cranial suture closure and arthritic changes suggest an age at death of 40 to 50 years. Cranial morphology suggests likely female sex.

BURIAL 331.—FN: Artifacts in association with this burial were a coffin outline, nails, wood fragments, and two fragments of an unidentified metal.

The incomplete remains are of an adolescent male. Bones present are the frontal (3); other bones of the cranial vault (1); right zygomatic (2); both maxillae (2); left (1) and right (2) palatines; mandible (1); right clavicle (1); both scapulae (3); both ilia (1); both pubic bones (3); left patella (1); all cervical vertebrae; one thoracic vertebra; right first rib; two other right ribs; proximal epiphysis (1), diaphysis (1), and distal epiphysis (2) of the left humerus; proximal epiphysis (1) and proximal (2), middle (2), and distal (1) thirds and distal epiphysis (2) of the right humerus; proximal third (3) of the left radius; proximal (3) and middle (1) thirds of the right radius; proximal epiphysis (3) and proximal (2) and middle (3) thirds of the left ulna; proximal epiphysis (2) and proximal (1) and middle (3) thirds of the right ulna; both femora (1); both tibiae (1); both diaphyses (1) of the fibulae; three metacarpals, side and digit undetermined; four middle hand phalanges; both calcanei; both tali; both cuboids;

second cuneiforms; third cuneiforms; both foot naviculars; all metatarsals; and three proximal foot phalanges.

Present in occlusion are all permanent maxillary teeth except the left third molar (congenital absence) and right third molar (not in occlusion) and all permanent mandibular teeth except the third molars (not in occlusion). The maxillary right first molar and mandibular left first molar were damaged.

Carious lesions are on the occlusal surfaces of the mandibular right second molar and mandibular right first molar (two lesions); interproximal surfaces of the maxillary first premolars and, in mandibular teeth, the right first molar, right canine, left lateral incisor (two lesions), right incisors (two lesions on each),

and left central incisor; smooth surfaces of the maxillary incisors (figures 51, 52); and large surfaces of the maxillary right first molar and mandibular left first molar. Alveolar abscesses are associated with the maxillary right first molar (Figure 53) and mandibular left first molar.

Enamel defects consist of linear horizontal grooves on the following maxillary teeth: left (3.8 mm) and right (3.2 mm) second molars, left first molar (4.1 mm), and left (4.9 mm) and right (3.6 mm) second premolars, and on the following mandibular teeth: right first molar (4.9 mm), right second premolar (4.7 mm), and left canine (7.8 mm). Discrete-boundary hypocalcification is on the maxillary left first molar (4.1 mm), maxillary right lateral in-



FIGURE 51.—Smooth-surface carious lesions, labial surface of maxillary left incisors, burial 331.



FIGURE 52.—Smooth-surface carious lesions, labial surface of maxillary right incisors, burial 331.



FIGURE 53.—Large carious lesion of maxillary right first molar with associated alveolar abscess, burial 331.

cisor, (8.3 mm), maxillary left (5.3 mm) and right (4.8 mm) central incisors, and mandibular right first molar (2.9 mm).

Preservation of the remains corresponds to weathering stage 5. Black staining is on all the remains.

Skeletal and dental maturation suggest an age at death of about 15 years. Robust skeletal morphology suggests male sex.

BURIAL 332.—FN: A faint wood coffin outline and nails were in association with this burial. No other artifacts were present. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 333.—FN: Nails were the only associated artifacts. The size of the coffin outline suggests the burial was of an infant.

No human remains were recovered.

BURIAL 334.—FN: Coffin nails and wood were in association with this burial. Flannel fabric was on the interior coffin floor, and copper and fabric rickrack were tacked to the coffin's exterior. Decorative white metal nails were at the head and foot of the coffin's sides, and two white metal nails with escutcheons and possible linen fragments were recovered from the midsection of the coffin. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 335.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

Human remains are bone fragments and teeth of an infant. Two forming permanent maxillary teeth are present, the left canine and left central incisor.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of 2 to 3 months.

BURIAL 336.—FN: Coffin nails, three wooden nails or pins, and wood fragments were in association with this burial. Several fragments of twisted iron, possibly from a bonnet (Beynon, 1989:95), were recovered from around the cranium, and a straight pin was found to the left of the cervical region.

The incomplete remains are of an infant. Bones present are the right temporal (3), mandible (3), and six cervical vertebrae.

Deciduous teeth in occlusion are the maxillary right first molar, maxillary left lateral incisor, and mandibular incisors. Those not in occlusion are the maxillary left molars, maxillary right canine, and the other mandibular teeth.

Permanent teeth present, not in occlusion, are the maxillary left first molar, and from the mandible the first molars, canines, and incisors.

Preservation of the remains corresponds to weathering stage 2.

The extent of dental formation suggests an age at death of 1.5 to 2.1 years.

BURIAL 337.—FN: Coffin nails were the only associated artifacts. There was evidence that this burial had been disturbed and that another burial lay beneath it.

Fragments of long bones of an adolescent or adult are present. Preservation of the remains corresponds to weathering stage 5.

BURIAL 338.—FN: The only associated artifacts were coffin nails and wood fragments. The size of the grave outline suggests the burial was of an infant.

No human remains were recovered.

BURIAL 339.—FN: Coffin nails and wood were the only associated artifacts. The size of the grave outline suggests the burial was of a small child.

No human remains were recovered.

BURIAL 340.—FN: Coffin nails were the only artifacts present. The size of the coffin outline suggests the burial was of a late-term fetus or newborn.

No human remains were recovered.

BURIAL 341.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. The size of the coffin outline suggests the burial was of a young infant.

No human remains were recovered.

BURIAL 342.—FN: Coffin nails, wood fragments, and four white porcelain buttons were in association with this burial. No other artifacts were present. The coffin was sized for an older infant or small child.

Bone fragments of an infant are present.

BURIAL 343.—FN: A wooden coffin mold and nails were the only associated artifacts. The coffin was sized for infant.

No human remains were recovered.

BURIAL 344.—FN: A coffin outline and nails were in association with this burial. No other artifacts were present. The coffin was sized for an infant.

Fragments of an infant's temporal bone are present.

BURIAL 345.—FN: A coffin outline and nails were in association with this burial. Two white porcelain buttons were recovered from the innominate region where the hands were folded, suggesting these are cuff buttons.

The incomplete remains are of an adult male. Present are the bones of the cranial vault (1); left zygomatic (1); both maxillae (2); both palatines (1); mandible (1); right clavicle (2); manubrium (2); sacrum (3); right scapula (3); both ilia (2); both ischia (2); all vertebrae; both first ribs; five left and five right other ribs; proximal epiphyses (2), proximal thirds (2), and remainders (1) of the humeri; proximal epiphysis (2), proximal third (2), and remainder of the diaphysis (1) of the left radius; epiphyses (2), proximal diaphysis (2), and remainder of the diaphysis (1) of the right radius; left ulna (1); proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the right ulna; left femur (1); proximal epiphysis (2) and remainder (1) of the right femur; both tibiae (1); proximal epiphysis (2) and remainder (1) of the left fibula; proximal (2), middle (2), and distal (1) thirds and distal epiphysis (1) of the right fibula; left lunate; one pisiform; right greater multangular; right capitate; one first metacarpal, side undetermined; three other metacarpals, side and digit undetermined; one proximal hand phalanx; three distal hand phalanges; both calcanei; both tali; both cuboids; right second and third cuneiform; right foot navicular; third, fourth, fifth, and two other metatarsals; one proximal foot phalanx; three middle foot phalanges; and one distal foot phalanx.

Permanent teeth present, in occlusion, from the maxillae are the third molars, right second molar (damaged), premolars, canines, left lateral incisor, and right central incisor, and from the mandible all teeth except the left molars, right first molar, and

left second premolar, which were lost antemortem. The maxillary first molars and left second molar were lost antemortem.

Carious lesions are on the occlusal surfaces of the maxillary left third molar and mandibular right third molar; interproximal surfaces of the maxillary third molars, maxillary right second premolar, and maxillary left first premolar; smooth surface of the maxillary right third molar; root of the mandibular right second premolar; and large surface of the maxillary right second molar.

A discrete-boundary hypocalcification is on the maxillary left third molar (3.3 mm).

Preservation of the remains corresponds to weathering stage 3. Green staining is on the manubrium, seventh cervical vertebra, and first thoracic vertebra.

Cranial suture closure suggests an age at death of about 30 years. Pelvic and other skeletal morphology suggest male sex.

The maximum length of the femur is 45.3 cm, suggesting a living stature of about 169 cm (5 ft 6.5 in).

BURIAL 346.—FN: A coffin outline and nails were associated with this burial. A chert flake and a small paper fragment with German script were also recovered.

The incomplete remains are of an adult male. Bones present are the frontal (1); left (1) and right (2) parietals; occipital (2); left temporal (2); left maxilla (2); both palatines (1); mandible (2); one scapula (3), side undetermined; left ilium (2); right ischium (2); left patella (1); first two cervical vertebrae; fragments of the lumbar vertebrae; proximal epiphysis (2), proximal third (2), and remainder (1) of the left humerus; proximal (3), middle (2), and distal (1) thirds and distal epiphysis (2) of the right humerus; proximal epiphysis (3) and proximal (2) and middle (3) thirds of the left radius; middle third (3) of the right radius; proximal epiphysis (1) and proximal (1) and middle (3) thirds of the left ulna; proximal epiphysis (3) and proximal (3) and middle (3) thirds of the right ulna; proximal epiphysis (2), proximal third (2), and remainder (1) of the left femur; proximal epiphysis (3), proximal (2) and middle (2) thirds, and remainder (3) of the right femur; distal epiphysis (3) and remainder (1) of the left tibia; right tibia (3); proximal epiphysis (3) and proximal (2), middle (2), and distal (2) thirds and distal epiphysis (1) of the left fibula; middle third (2) of the right fibula; metacarpal fragments; two proximal hand phalanges; two middle hand phalanges; three distal hand phalanges; both calcanei; left talus; left cuboid; left first cuneiform; left fifth metatarsal; and one other metatarsal, side and digit undetermined.

All permanent teeth are present, in occlusion, except the maxillary right second premolar and mandibular right first premolar.

Carious lesions are on the occlusal surface of the mandibular right third molar, interproximal surface of the maxillary first premolars and maxillary central incisors, smooth surface of the maxillary right second molar, and large surface of the maxillary right third molar.

One enamel defect is present: a nonlinear array of pits on the mandibular left canine (4.1 mm).

Preservation of the remains corresponds to weathering stage 4. Hair is on the cranium in the bregma area.

Dental attrition (minimal) and cranial suture closure suggest an age at death of 23 to 27 years. Pelvic and general skeletal morphology suggest male sex.

Femur length is 46.5 cm, suggesting a living stature of about 172 cm (5 ft 7.7 in).

A supernumerary tooth is above the right maxillary central incisor. A radiograph revealed no lines of arrested growth on the tibia.

BURIAL 347.—FN: Artifacts found in association with this burial were coffin nails, wood fragments, and a porcelain button recovered from the upper torso region.

The incomplete remains are of an adult. Bones present are the frontal (2); left (2) and right (3) parietals; right temporal (2); right zygomatic (2); right ilium (3); left acetabulum (3); left (1) and right (2) patellae; three lumbar vertebrae; distal third (2) of the left humerus; diaphysis (3) of the right humerus; middle thirds (3) of both radii and both ulnae; proximal epiphysis (3), diaphysis (1), and distal epiphysis (2) of the left femur; epiphyses (3) and proximal (2), middle (1), and distal (2) thirds of the right femur; proximal (3), middle (2), and distal (3) thirds of the left tibia; proximal (2), middle (1), and distal (2) thirds of the right tibia; right calcaneus; and right talus.

Permanent teeth present, in occlusion, from the maxillae are the second molars, left first molar, second premolars, left first premolar, right canine, and left incisors, and from the mandible the right third, right second, and left first molars. The maxillary left canine is fully formed but is not erupted.

Carious lesions are on the interproximal surfaces of the maxillary left second molar and maxillary left first premolar.

Preservation of the remains corresponds to weathering stage 5. Hair is present.

Cranial suture closure, dental formation, dental eruption, and dental attrition suggest an age at death of 25 to 35 years. The skeleton is relatively gracile, but the femoral head measures 47 mm in diameter. Thus, the sex of the individual can not be reliably determined.

BURIAL 348.—FN: A coffin outline and nails were in association with this burial. White buttons and two copper coins, found either on or near the eye orbits, were also recovered. One coin was dated 1847 (Beynon, 1989:97).

The incomplete remains are of an adult male. Bones present are the frontal (1); right parietal (1); occipital (1); left (3) and right (2) temporals; right maxilla (3); both palatines (1); mandible (2); right clavicle (2); sternum (3); left (3) and right (1) scapulae; left (3) and right (2) ilia; left patella (1); seven cervical vertebrae; nine thoracic vertebrae; five lumbar vertebrae; five left and four right ribs; epiphyses (3) and middle (2) and distal (3) thirds of the left humerus; right humerus (1); proximal epiphysis (3) and proximal (1), middle (1), and distal (2) thirds of the left radius; proximal epiphysis (1) and proximal (1), middle (2), and distal (3) thirds of the right radius; proximal epiphysis (3) and proximal (1) and middle thirds (2) of the left ulna; proximal epiphysis (1) and proximal (1) and middle thirds (3) of the right ulna; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds and distal epiphysis (3) of the left femur; epiphy-

ses (2) and diaphysis (1) of the right femur; proximal epiphysis (2), diaphysis (1), and distal epiphysis (3) of the left tibia; proximal epiphysis (3) and proximal (2), middle (2), and distal (3) thirds and distal epiphysis (3) of the right tibia; proximal (3), middle (2), and distal (1) thirds and distal epiphysis (1) of the left fibula; distal third (3) and distal epiphysis (3) of the right fibula; left lunate; left triquetral; left capitate; left hamate; all tarsal bones; all left metatarsals; three proximal foot phalanges; and one distal foot phalanx.

Permanent teeth present, in occlusion, from the maxillae are the right second molar, premolars, and canines, and from the mandible the first two molars, premolars, central incisors (damaged), canines, and lateral incisors. The four third molars and maxillary first molars were lost antemortem.

Preservation of the remains corresponds to weathering stage 3. Green staining is on the frontal bone in the area of both orbits. Field notes indicated that coins were found in the orbit area. Some dark brown hair and associated desiccated soft tissue are also present.

Cranial suture closure, dental attrition, dental loss, and arthritic changes suggest an age at death of 27 to 35 years. Pelvic and general skeletal morphology suggest male sex.

Maximum length of the right femur is about 43.9 cm, suggesting a living stature of about 166 cm (5 ft 5.4 in).

Healed complete fractures are present on both ulnae. The fractures are on the distal third of the right ulna and the middle third of the left ulna in locations consistent with parry fractures. The bone segments are healed but misaligned and overlapping (Figures 54, 55).

BURIAL 349.—FN: Artifacts found in association with this burial were coffin wood, nails, and red pink paint.

The incomplete remains are of a child. Bones present are the frontal (3); both parietals (3); occipital (3); left (2) and right (1) temporals; both maxillae (1); both palatines (2); mandible (2); both ilia (3); first and four other cervical vertebrae; three left ribs; proximal epiphysis (3) and proximal third (3) of the left femur; proximal (3) and middle thirds (3) and distal epiphysis (3) of the right femur; proximal (3) and middle (2) thirds of the left

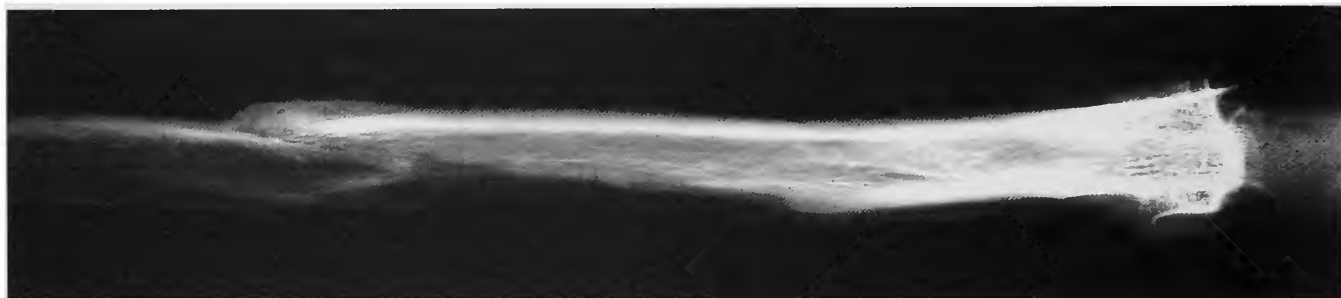


FIGURE 54.—Radiograph of misaligned healed ulna fracture, burial 348.



FIGURE 55.—Healed fractures of ulnae, burial 348.

tibia; proximal (3) and middle (2) thirds and distal epiphysis (3) of the right tibia; middle thirds of the left (3) and right (1) fibulae; both calcanei (3); right talus (3); and three metatarsals, side undetermined.

All deciduous teeth are present, in occlusion, except the mandibular central incisors.

Permanent teeth in occlusion are the maxillary first molars, mandibular right first molar, and mandibular central incisors. Those not in occlusion from the maxillae are the second molars, premolars, canines, left lateral incisor, and right incisors, and from the mandible the second molars, left first molar, left premolars, and left canine.

Cariou lesions in the deciduous dentition are on the occlusal surfaces of the maxillary second molars; interproximal surfaces of the maxillary first molars (two lesions on each tooth), maxillary right canine, maxillary right lateral incisor, maxillary left central incisor (two lesions) and the following mandibular teeth: left second molar, right second molar (two lesions), and right first molar; and smooth surface of the mandibular right canine.

Enamel defects in deciduous teeth consist of discrete-boundary hypocalcification in the maxillary right second molar (2.4 mm) and mandibular right second molar (1.6 mm).

Enamel defects in the permanent dentition consist of linear horizontal grooves in the maxillary right first molar, mandibular second molars and mandibular right first molar.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all the remains.

The extent of dental formation suggests an age at death of 4.7 to 6.5 years.

BURIAL 350.—FN: Nails were the only associated artifacts.

The incomplete remains are of a child. Bones present are the frontal (3), occipital (3), both maxillae (3), mandible (3), sacrum (3), both ilia (3), second cervical vertebra, middle third (3) of the left humerus, both femora (3), proximal epiphysis (3) and middle third (3) of the right tibia, and diaphysis (3) of the right fibula.

Deciduous teeth present, in occlusion, are the molars and maxillary canines.

Permanent teeth in occlusion are the first molars, right lateral incisors, central incisors, mandibular left canine, and mandibular left lateral incisor. Those not in occlusion are the second molars, maxillary left premolars, mandibular premolars, and mandibular right canine.

Cariou lesions in the deciduous dentition are on the occlusal surfaces of the maxillary second molars and the interproximal surfaces of the maxillary first molars, maxillary canines, and mandibular left first molar.

One carious lesion is on the interproximal surface of the permanent mandibular right first molar.

Preservation of the remains corresponds to weathering stage 3. Black staining is on all the remains.

The extent of dental formation suggests an age at death of 8.2 to 10.2 years.

BURIAL 351.—FN: Nails were the only associated artifacts. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 352.—FN: Coffin nails were the only associated artifacts. The coffin was sized for a newborn or young infant.

No human remains were recovered.

BURIAL 353.—FN: Nails, tacks, and wood fragments that possibly delineated the middle of the coffin floor were in association with the human remains. No other artifacts were present.

Cranium fragments from an infant are present.

BURIAL 354.—FN: Only a coffin outline and nails were in association with this burial.

Cranium fragments from an infant are present.

BURIAL 355.—FN: Artifacts in association with this burial were coffin nails, wood fragments, and four copper straight pins. One pin was recovered from the cranium's frontal area, one from the region of the right temporal, with apparent hair and fabric attached, and two from the cervical region. Hair was also present.

The incomplete remains are of a child. Fragments of the cranium, pelvis, ribs, and long bones are present.

Deciduous teeth present, in occlusion, from the maxillae are the molars, right canine, and right lateral incisor, and from the mandible the right molars, left canine, and right lateral incisor.

All permanent teeth except the third molars are present but are not in occlusion.

Cariou lesions are in the deciduous maxillary dentition on the occlusal surfaces of the left second molar and right canine and interproximal surfaces of the four molars, right canine, and right lateral incisor.

Enamel defects consist of a single pit in the deciduous maxillary right canine (n/a) and a linear horizontal groove in the permanent maxillary right lateral incisor (n/a).

Preservation of the remains corresponds to weathering stage 5. Green stains and black stains are on all the remains.

The extent of dental formation suggests an age at death of about 4 years.

BURIAL 356.—FN: Nails were the only associated artifacts.

The incomplete remains are of a child. Bones present are fragments of the cranial vault, right ilium, ribs, and long bones.

Deciduous teeth present, in occlusion, are the maxillary right second molar, maxillary right canine, mandibular right molars, and mandibular left second molar.

Permanent teeth present, not in occlusion, are the canines; from the maxillae the right first and second molars, second premolars, left first premolar, lateral incisors, and left central incisor; and from the mandible the second molars, right first molar, left premolars, and incisors.

Cariou lesions in the deciduous dentition are on the occlusal surface of the mandibular right second molar and interproximal surfaces of the mandibular right molars.

Preservation of the remains corresponds to weathering stage 5. Green stains and black stains are on all the bones.

The extent of dental formation suggests an age at death of 5.1 to 6.0 years.

BURIAL 357.—FN: Nails were the only associated artifacts. Braided, light-colored hair, about 80 mm long, was present.

The incomplete remains are of a subadult. Bones present are the frontal (2); both temporals (3); both maxillae (2); mandible (1); right scapula (3); both ilia (3); second cervical vertebra; three other cervical vertebrae; rib fragments; diaphysis (3) of the left humerus; proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (3) of the right humerus; proximal epiphysis (3) of the right radius; proximal epiphysis (2) of the right ulna; proximal epiphysis (3) and diaphysis (3) of the left femur; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the right femur; middle thirds (3) of the tibiae; right calcaneus; and right talus.

All permanent teeth are present in occlusion except the third molars, which are not in occlusion.

One carious lesion is on the occlusal surface of the mandibular left first molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on fragments from the pelvis and cranium.

The extent of dental formation suggests an age at death of about 12.2 years. The presence of braided hair suggests female sex.

BURIAL 358.—FN: Nails, two escutcheons, and two small fragments of copper recovered from the right side of the cranium were in association with this burial. Braided hair was also present.

The incomplete remains are of an adolescent. Bones present are the frontal (1); both parietals (3); occipital (2); both temporals (2); left maxilla (1); mandible (2); left clavicle (3); pelvis fragments; fragments from the humerus, ulna, and fibula; epiphyses (3) and proximal (3), middle (2), and distal (3) thirds of the left femur; right femur (3); proximal epiphyses (3) and proximal (3), middle (2), and distal (3) thirds of the left tibia; diaphysis (3) of the right tibia; both calcanei; both tali; and one left and two right metatarsals, digits undetermined.

Permanent teeth present, in occlusion, are all maxillary teeth (canines and left lateral incisor damaged), and from the mandible the molars (right first molar damaged), premolars, right canine, and right central incisor.

Carious lesions are on the occlusal surfaces of the maxillary left second molar and mandibular second molars.

Enamel defects consist of a nonlinear array of pits on the mandibular left second molar (n/a) and a single pit on the mandibular left third molar (n/a).

Preservation of the remains corresponds to weathering stage 5. Green staining, apparently copper, is on the right temporal and occipital. Black staining is on many fragments.

The extent of dental formation suggests an age at death 16 to 18 years. No reliable estimate of sex can be made. The presence of braided hair suggests female sex.

BURIAL 359.—FN: A coffin outline and plain and ornamental nails were in association with this burial. No other artifacts were present. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 360.—FN: Nails were the only associated artifacts. The coffin was sized for a late-term fetus or newborn.

No human remains were recovered.

BURIAL 361.—FN: The only associated artifact was one nail.

The incomplete remains are from two individuals, an adult, represented by nine maxillary teeth, and a child. Immature bones present are small fragments of the cranium, left femur, and right tibia. Remains of the adult are not further discussed.

Deciduous teeth present, in occlusion, are the maxillary right second molar, maxillary left first molar, and maxillary left canine.

Permanent teeth present, not in occlusion, are the first molars, right second premolars, first premolars, canines, and incisors.

One carious lesion is on the occlusal surface of the deciduous maxillary right second molar.

Enamel defects consist of a nonlinear array of pits on the deciduous maxillary right second molar. In the permanent teeth, defects are linear horizontal pits on the maxillary left and right first molars (occlusal surfaces), mandibular first molars, mandibular canines, and mandibular left incisors, and nonlinear arrays of pits on the maxillary canines, maxillary left central incisor, and mandibular right central incisor. (Distances from the CEJ are not available.)

Preservation of the remains corresponds to weathering stage 5. Black staining is on the cranium fragments. Hair is also present.

The extent of dental formation suggests an age at death of 3.5 to 4.8 years.

BURIAL 362.—FN: A coffin outline, nails, tacks, and wood fragments were in association with this burial. No other artifacts were recovered. The coffin was sized for an infant.

Teeth and small fragments of the cranium of an infant are present.

BURIAL 363.—FN: A coffin outline, nails, and a wood fragment were in association with the human remains. No other artifacts were present.

The incomplete remains are of an adult male. Bones present are the frontal (1); both parietals (3); occipital (1); both temporals (2); both maxillae (1); both palatines (1); mandible (1); right clavicle (3); sacrum (2); left (3) and right (1) scapulae; left (1) and right (3) ilia; both ischia (3); both patellae (1); all cervical vertebrae; 10 thoracic vertebrae; five lumbar vertebrae; rib fragments; proximal epiphysis (3) and middle third (3) of the left humerus; proximal epiphysis (3) and proximal (3) and middle thirds (1) of the right humerus; distal third of the left radius (3); proximal (3) and middle (3) thirds of the left ulna; middle third of the right ulna (3); epiphyses (1) and middle third (2) of the left femur; epiphyses (3) and proximal (1) and middle (1) thirds of the right femur; proximal epiphysis (3) and middle third (1) of the left tibia; proximal epiphysis (3) and middle third (2) of the right tibia; right lunate; right pisiform; right capitate; right fourth metacarpal; right fifth metacarpal; four proximal hand phalanges; both calcanei; both tali; right cuboid; right first and second cuneiforms; right foot navicular; both first metatarsals; and the other right metatarsals.

All permanent teeth are present, in occlusion, except the maxillary left third molar, maxillary left first premolar, mandibular right third molar, and mandibular left second molar.

Carious lesions are on the occlusal surface of the mandibular left first molar; interproximal surfaces of the maxillary right inci-

sors; and cervical areas of the maxillary right third molar, maxillary second molars, mandibular right second molar and mandibular left first molar. Alveolar abscesses are associated with the maxillary left first premolar and maxillary left central incisor.

Preservation of the remains corresponds to weathering stage 2. Black staining is on all the remains.

Vertebral osteophytosis, cranial suture closure, and dental attrition suggest an age at death of 28 to 35 years. Pelvic and general skeletal morphology suggest male sex.

A notch or chip measuring about 1 × 1 mm is in the center of the incisal edge of the right maxillary central incisor.

BURIAL 364.—FN: Nails were the only associated artifacts.

The incomplete remains are of a child. Bones present are the temporals (3) and fragments of the cranium and long bones.

Deciduous teeth present, in occlusion, from the maxillae are all teeth except the left canine and right central incisor, and from the mandible the left second molar and right central incisor.

Permanent teeth in occlusion, but damaged, are the second molars, right first molars, maxillary premolars, and two left canines. The maxillary left central incisor is present but is not in occlusion.

Carious lesions are on the interproximal surfaces of the maxillary lateral incisors and maxillary left central incisor.

Enamel defects in the permanent dentition consist of nonlinear arrays of pits in the maxillary left central incisor and single pits in the maxillary left first molar and maxillary left canine. (Distances from the CEJ are not available.)

Preservation of the remains corresponds to weathering stage 5. Black staining is on the remains.

The extent of dental formation suggests an age at death of between 5 to 6 years.

BURIAL 365.—FN: Nails were the only associated artifacts.

The incomplete skeletal remains are of a child. Bones present are fragments from the sacrum, ischium, and vertebrae; proximal epiphysis (2) and remainder (1) of the left femur; proximal epiphysis (2) and proximal (2), middle (1), and distal (2) thirds of the right femur; proximal (2), middle (2), and distal (3) thirds of the left tibia; proximal epiphysis (3) and proximal (3), middle (2), and distal (3) thirds of the right tibia; left fibula (1); and diaphysis of the right fibula (3).

No teeth are present.

Preservation of the remains corresponds to weathering stage 1. Black spots (likely fungal) are on most bones.

The extent of bone formation suggests an age at death of 3 to 6 years.

BURIAL 366.—FN: Artifacts in association with this burial were a wooden coffin mold and nails.

Human remains are cranium fragments and mandibular teeth of a child. The deciduous left canine, in occlusion, and the permanent canines, right lateral incisor, and central incisors, not in occlusion, are present.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of about 3 years.

BURIAL 367.—FN: A coffin outline and nails were in association with this burial.

Human remains are cranium fragments and teeth of an infant. Permanent teeth present, not in occlusion, are the first molars and mandibular right central incisor.

Preservation of the remains corresponds to weathering stage 2. Black staining is on the fragments.

The extent of dental formation suggests an age at death of 1.5 to two years.

BURIAL 368.—This burial was associated with feature 22. No human remains were recovered.

BURIAL 369.—FN: Associated artifacts recovered were coffin nails, wood fragments, and white paint. The size of the coffin suggests the burial was of a newborn or small infant.

No human remains were recovered.

BURIAL 370.—FN: A coffin outline and nails were in association with this burial. No other artifacts were present.

Human remains are cranium fragments and teeth of a child. Bones present are the temporals (3) and fragments of the cranium and the right femur. Deciduous teeth, in occlusion, are the maxillary right central incisor and mandibular left first molar. The permanent mandibular right first molar is in occlusion. Permanent teeth not in occlusion are the maxillary second molars and, from the mandible, the right second molar, left first molar, right premolars, and left canine.

Enamel defects in the permanent dentition consist of linear horizontal pits on the occlusal surfaces of the mandibular first molars and mandibular left canine (10.2 mm).

Preservation of the remains corresponds to weathering stage 2. Black staining is on the remains.

The extent of dental formation suggests an age at death of about 6 years.

BURIAL 371.—FN: Nails, wood fragments, and red paint were the only associated artifacts. The size of the grave outline suggests the burial was of an infant or small child.

Cranium fragments from an infant are present. Their preservation corresponds to weathering stage 5.

BURIAL 372.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

Human remains are cranium fragments and teeth of a child. Bones present are the temporals (3), maxillae (3), mandible (3), and vertebrae fragments. Deciduous teeth, in occlusion, are the molars, mandibular canines, and mandibular right lateral incisor. Permanent teeth, not in occlusion, are the first molars and central incisors; from the maxillae the left first premolar, left canine, and left lateral incisor; and from the mandible the right second molar and right lateral incisor.

Cariou lesions in the deciduous dentition are on the occlusal surface of the mandibular right second molar and interproximal surfaces of the mandibular right second molar and mandibular left and right (two lesions) first molars.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the remains. A crystal-like material is on fragments of the cranium.

The extent of dental formation suggests an age at death of 2.7 to 3.7 years.

BURIAL 373.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. The coffin was sized for a newborn.

No human remains were recovered.

BURIAL 374.—FN: A coffin outline and nails, some with wood adhering to them, were in association with this burial. No other artifacts were present.

The left temporal (3), fragments of the cranium and long bones, and teeth of an infant are present. Deciduous teeth, in occlusion, are the maxillary right second molar, maxillary left canine, mandibular molars, and mandibular left canine.

Preservation of the remains corresponds to weathering stage 4. Hair and desiccated tissue are present. Black staining is on the bone fragments.

The extent of dental formation suggests an age at death of 1.5 to 2 years.

BURIAL 375.—FN: A coffin outline and nails were the only associated artifacts. Evidence of pink paint was in the areas associated with the sides and floor of the coffin.

Human remains are deciduous tooth fragments of an infant probably 0.8 to 1.5 years of age. Teeth present, in occlusion, are the second molars, maxillary left first molar, maxillary right canine, mandibular left first molar, and mandibular left canine.

BURIAL 376.—FN: Artifacts found in association with this burial were nails and a single hairpin with attached hair.

Present are the tooth fragments of a child and the right arm bones of a young adolescent. The proximal epiphysis of the radius is unfused. Field notes indicate the burial was that of a child and that no long bones were present; thus, the arm bones were probably mislabeled.

Deciduous teeth present, in occlusion, are the second molars and maxillary right first molar.

Permanent teeth present, not in occlusion, are the first molars, maxillary left central incisor, and mandibular right central incisor.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the cranium fragments; orange staining is present as well.

The extent of dental formation suggests an age at death of about 3 years. The presence of the hairpin suggests female sex.

BURIAL 377.—FN: A coffin outline, nails, cloth fragments, and straight pins were found in association with this burial. There was evidence that red paint had been on the coffin and that fabric had been adhered to sections of the coffin's interior. The other cloth fragments recovered were associated with straight pins found near the cranium. The coffin was sized for an infant.

The extremely fragmentary cranial bones of an infant are present.

BURIAL 378.—FN: Nails were the only associated artifacts. The size of the coffin outline suggests the burial was of a newborn.

The black-stained petrous portion (3) of a left temporal of an infant is present.

BURIAL 379.—FN: A coffin outline, nails, wood fragments, and a white porcelain button were found in association with this burial. No other artifacts were present.

The moderately well-preserved skeleton is of an adult male. Present are the bones of the cranial vault (1); both zygomatics (2); both maxillae (1); both palatines (1); mandible (1); both ilia (3); all cervical vertebrae; epiphyses (2) and proximal (3), middle (3), and distal (1) thirds of the left humerus; proximal (1) and middle thirds (1) of the right humerus; middle (3) and distal (3) thirds of the left radius; proximal epiphysis (3) and proximal (1) and middle (3) thirds of the left ulna; proximal epiphysis (2), diaphysis (2), and distal epiphysis (3) of the left femur; proximal epiphysis (1) and diaphysis (3) of the right femur; diaphysis (3) of the left tibia; proximal epiphysis (3) and proximal (3) and middle (3) thirds of the right tibia; epiphyses (3) of the left fibula; middle (3) and distal (3) thirds and distal epiphysis (2) of the right fibula; right lunate; right hamate; one right metacarpal, side undetermined; two proximal hand phalanges; and right talus.

Permanent teeth present, in occlusion, are the second and third molars, the maxillary left first premolar (damaged), and (all damaged) the mandibular first premolars, mandibular canines, and mandibular right incisors. The first molars and mandibular second premolars were lost antemortem.

Carious lesions are on the interproximal surfaces of the maxillary right second molar, maxillary left first premolar, mandibular second molars, mandibular left first premolar (two lesions) and mandibular left canine (two lesions); root of the mandibular right second molar; and large surfaces of the mandibular right first premolar, mandibular right canine, and mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the right tibia.

The extent of degenerative changes suggests an age at death of 55 to 75 years.

Arthritic pitting is visible on the temporomandibular joint surface and vertebral surfaces. Lipping is on the occipital condyles, vertebral bodies, and articular facets of the vertebrae. Severe alveolar resorption is visible, with calculus on the roots of the teeth. At least six teeth were lost antemortem. Nine of the 14 observable teeth were carious. Hypoplastic defects (linear horizontal grooves), on the mandibular left (2.0 mm) and right (1.6 mm) third molars, formed between 11 and 12 years of age.

BURIAL 380.—FN: A coffin outline, nails, and wood fragments were in association with this burial. An unidentified copper or brass item and two porcelain buttons were also recovered.

The moderately well-preserved skeleton is of an adult male. Bones present are the frontal (1); left (1) and right (2) parietals; occipital (1); left (1) and right (2) temporals; right maxilla (3); mandible (2); right clavicle (3); right scapula (2); left (2) and right (3) ilia; left (2) and right (3) patellae; four cervical vertebrae; both humeri (1); proximal epiphysis (1) and proximal (1) and middle (1) thirds of the left radius; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the right radius; proximal epiphysis (1) and proximal (1) and middle (1) thirds of the left ulna; proximal epiphysis (1) and proximal (1), middle (1), and

distal (2) thirds of the right ulna; epiphyses (2) and diaphysis (1) of the left femur; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (1) of the right femur; proximal epiphysis (3) and proximal (1) and middle (1) thirds of the left tibia; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds of the right tibia; both calcanei; both tali; right cuboid; right cuneiforms; both foot naviculars; right metatarsals; left fifth metatarsals; two other left metatarsals; six proximal foot phalanges; and one distal foot phalanx.

Permanent teeth present, in occlusion, are the following maxillary teeth: third molars, right first molar, left first premolar, canines, and incisors, and all mandibular teeth except the left molars (lost antemortem). The maxillary left second molar was lost antemortem.

Cariou lesions are on the interproximal surfaces of the following mandibular teeth: right third molar, right premolars, and left second premolar; and the smooth surface of the maxillary left central incisor.

Enamel defects, all in maxillary teeth, consist of linear horizontal grooves on the left third molar (2.9 mm), left first premolar (2.7 mm), left (4.4 mm) and right (4.1 mm) canines, right lateral incisor (4.1 mm), and left (two lesions, 2.9 mm, 4.5 mm) and right (n/a) central incisors; and nonlinear arrays of pits on the left lateral incisor (4.5 mm).

Preservation of the remains corresponds to weathering stage 2. Black staining is on the remains.

Dental attrition, dental loss, arthritic changes, and cranial suture closure suggest an age at death of 35 to 45 years. Skeletal morphology suggests male sex.

Femur length is 42.8 cm, suggesting a living stature of about 163.3 cm (5 ft 4.3 in).

BURIAL 381.—FN: Artifacts found in association with this burial were nails, fabric fragments from the western coffin edge, two porcelain buttons from the cervical region, and four metal buttons from the lower vertebral and innominate region.

The moderately well-preserved skeleton is of an adult male. Bones present are the left (2) and right (1) parietals; occipital (1); left (2) and right (1) temporals; mandible (1); both clavicles (2); left (2) and right (3) scapulae; left (2) and right (3) ilia; left (2) and right (1) patellae; all cervical vertebrae; eight thoracic vertebrae; two lumbar vertebrae; left first rib; nine other ribs; proximal epiphysis (3) and proximal (3), middle (2), and distal (2) thirds of the left humerus; proximal epiphysis (2) and diaphysis (1) of the right humerus; middle (2) and distal (2) thirds of the left radius; proximal (2), middle (1), and distal (1) thirds of the right radius; middle third (3) of the left ulna; proximal (2), middle (1), and distal (2) thirds of the right ulna; both femora (1); proximal (3), middle (2), and distal (3) thirds of the left tibia; proximal epiphysis (3) and proximal (3), middle (2), and distal (2) thirds of the right tibia; fibula fragments; both fifth metacarpals; right first, second, and third metacarpals; both calcanei; both tali; both first metatarsals; right second, third, and fourth metatarsals; and left fifth metatarsal.

All permanent mandibular teeth are present, in occlusion, except the first molars (lost antemortem).

An interproximal carious lesion is on the right first premolar.

Preservation of the remains corresponds to weathering stage 2. Green stains and black stains are on the remains. Green stains, apparently copper, are associated with the right femoral head.

Dental attrition, osteophytosis, and cranial suture closure suggest an age at death of 25 to 30 years. Pelvic and general skeletal morphology suggest male sex.

The left coronal suture appears to have closed prematurely.

BURIAL 382.—FN: A coffin outline, nails, and three porcelain buttons were in association with this burial. No other artifacts were present.

The fragmentary skeleton is of an adult male. Bones present are the frontal (3); both parietals (2); both temporals (2); both zygomatics (3); both maxillae (3); both palatines (3); mandible (3); right clavicle (2); both scapulae (2); pelvis fragments; six cervical vertebrae; epiphyses (2) and proximal (3), middle (1), and distal (1) thirds of the left humerus; epiphyses (2) and diaphysis (3) of the right humerus; diaphysis (3) and distal epiphysis (3) of the left radius; epiphyses (2) and diaphysis (3) of the right radius; proximal epiphysis (3) and proximal third (2) of the left ulna; proximal epiphysis (2) and proximal (2) and middle (3) thirds of the right ulna; proximal epiphyses (1) and proximal (2) and middle thirds (2) of the femora; fragments of the left tibia; proximal epiphysis (3) and diaphysis (2) of the right tibia; fragments of the left fibula; left hand navicular; left lunate; both first metacarpals; three other metacarpals; one proximal hand phalanx; two middle hand phalanges; and one distal hand phalanx.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the remains.

Cranial suture closure and other skeletal indicators suggest an age at death of 30 to 45 years. Pelvic and general cranial morphology suggest male sex.

Both femoral heads are deformed, with corresponding changes in the acetabula (Figure 56). The heads display slight inferior displacements (Figure 57) and extensive periarticular lipping. Most of the surfaces of the femoral heads are quite porous (Figure 58), with macroporosity measuring as large as 2



FIGURE 56.—Abnormal porosity of acetabulum, burial 382.



FIGURE 57.—Inferior displacement of femoral heads, burial 382.



FIGURE 58.—Abnormal porosity of femoral heads, burial 382.

mm in diameter. Extensive, well-remodeled, irregular-shaped reactive bone is on the medial posterior surface of the left femoral head. In both femora, the fovea capitis cannot be recognized. Maximum diameters of both femoral heads are 61 mm. The excessive bony growth gives the femoral heads a flattened, mushroom-like appearance with extensive abnormal irregular bone deposits (Figure 59) along the posterior and inferior margins. Radiographs revealed irregular, abnormally high density throughout the femoral heads (Figure 60). Although there is no direct evidence of necrosis, advanced Perthe's disease remains a

likely diagnosis. It is likely that this condition originally began as Perthe's disease, but the areas of focal necrosis have collapsed with advancing age of the individual. Perthe's disease is uncommon; it usually occurs unilaterally (90% of cases) and is more common in boys than in girls (Jaffe, 1972:566).

BURIAL 383.—FN: Nails and wood fragments were the only artifacts recovered in association with the human remains.

The incomplete remains are of an adolescent. Bones present are the frontal (3), left (2) and right (3) parietals, occipital (2), left (1) and right (2) temporals, both maxillae (2), mandible (2),

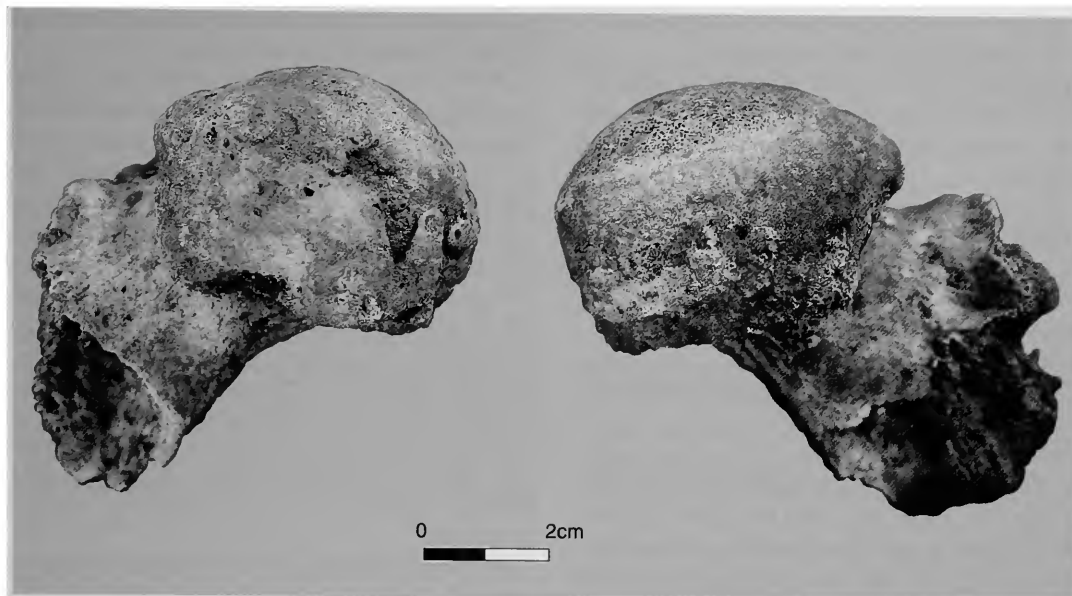


FIGURE 59.—Abnormal bone deposits on femoral heads, burial 382.



FIGURE 60.—Radiograph of left femoral head, burial 382.

right ilium (3), one cervical vertebra, distal third (2) of the left humerus, proximal thirds (2) of the left radius and ulna, diaphysis (2) of the left femur, middle third (2) of the right femur, and diaphysis (2) of the right tibia.

Permanent teeth in occlusion are all maxillary teeth except the third molars, and from the mandible the second molars, second premolars, left first premolar, left canine, and lateral incisors. Those not in occlusion are the maxillary right third molar and mandibular right third molar. The maxillary right lateral incisor and maxillary left first molar are damaged.

Carious lesions are on the occlusal surface of the maxillary second molars and interproximal surfaces of the following maxillary teeth: right second molar, right first molar (three lesions), left and right (two lesions) second premolars, left first premolar (two lesions), and left lateral incisor, and mandibular teeth: second molars and right premolars.

Preservation of the remains corresponds to weathering stage 4. Apparent rust is on the distal left humerus.

The extent of dental formation suggests an age at death of 14.5 to 15.8 years.

A small area of porous bone is visible on the endocranial surface of the occipital, just below the sagittal suture. The lateral maxillary incisors are peg-shaped.

BURIAL 384.—FN: Associated artifacts were a coffin outline with copper rickrack; nails; cloth fragments recovered from a section of the southeastern portion of the coffin; a straight pin, hook and eye, and white porcelain button recovered from the northern section of the coffin; a copper bell, bone whistle, and leather shoes recovered from the southern end of the coffin; and an ornamental metal plate recovered from the foot of the coffin, south of the leather shoes.

Teeth of an infant about 1.5 to 2.1 years of age are present. Deciduous teeth, in occlusion, are the molars, maxillary left canine, maxillary left central incisor, and mandibular left canine. Permanent teeth, not in occlusion, are the incisors, maxillary first molars, maxillary left canine, and mandibular right canine.

BURIAL 385.—FN: Artifacts associated with this burial were coffin-wood fragments and nails. The coffin was sized for an infant.

Cranium fragments and the left temporal (3) of an infant are present.

BURIAL 386.—FN: Associated artifacts were a partial coffin outline, nails, and a metal hook from a hook and eye.

Cranium fragments, the right temporal (3), and teeth of an infant are present. Deciduous teeth, not in occlusion, are the first molars, maxillary canines, mandibular left second molar, and mandibular left canine.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of 1 to 2 years.

BURIAL 387.—FN: Nails were the only artifacts within this burial. The coffin was sized for a newborn.

No human remains were recovered.

BURIAL 388.—FN: No associated artifacts were found. Feature 23 had disturbed the burial.

No human remains were recovered.

BURIAL 389.—FN: A coffin outline and nails were in association with this burial. Two copper coins were recovered: one from the west side of the mandible and the other from screened soil. The coin near the mandible had paper covering the side facing up and fabric on the reverse. The other coin also had some sort of material attached to it.

The incomplete remains are of a child. Bones present are cranium fragments, both temporals (3), mandible (2), and fragments of the scapulae, pelvis, vertebrae, ribs, and long bones.

Deciduous teeth present, in occlusion, are the maxillary left second molar and, from the mandible, the right two molars, right canine, and right lateral incisor.

Preservation of the remains corresponds to weathering stage 5. Green staining, apparently copper, is on the right mandible. Black staining is also on the remains.

The extent of dental formation suggests an age at death of 4.7 to 7.1 years.

BURIAL 390.—FN: Nails were the only associated artifacts found. The coffin was sized for an infant about 9 months of age.

Cranium fragments and both temporals (3) of an infant are present.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 391.—Associated artifacts found were coffin nails, wood fragments, one metal pin with a ball head (Beynon, 1989:103) recovered from screened soil, and several other pin-shaped objects found during the final clean up of the burial.

Teeth of a child are present. Deciduous teeth, in occlusion, are the second molars, maxillary right first molar, and maxillary right central incisor, and from the mandible the first molars, canines, and right lateral incisor. Permanent teeth, not in occlusion, are the first molars, left first premolars, mandibular right first premolar, canines, and incisors.

Cariou lesions in the deciduous dentition are on the occlusal surfaces of the maxillary left second molar (two lesions), mandibular second molars, and mandibular left first molar and the interproximal surfaces of the maxillary right second molar, maxillary right first molar (two lesions), maxillary right central incisor, mandibular right second molar, both mandibular first molars, and mandibular right lateral incisor.

The extent of dental formation suggests an age at death of about 3.7 years.

BURIAL 392.—FN: A coffin outline, nails, wood fragments, and white porcelain buttons (along the vertebra) were in association with this burial. No other artifacts were recovered.

The incomplete remains are of a young adult, probably male. Bones present are the cranium (1); mandible (1); both clavicles (1); left (1) and right (2) scapulae; both ilia (3); left patella (2); first two cervical vertebrae and three other cervical vertebrae; four thoracic vertebrae; three left and four right ribs; proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the left femur; epiphyses (2) and diaphysis (1) of the right femur; proximal epiphysis (2) and proximal (2) and middle (1) thirds of the left tibia; proximal epiphysis (2) and diaphysis (2) of the right tibia; epiphyses (3) of the left fibula; right first metacarpal; right calcaneus; right talus; right cuboid; right third cuneiform; both foot naviculars; both first metatarsals; and three other right metatarsals.

Permanent teeth present, in occlusion, from the maxillae are the second molars, first molars, right (damaged) and left premolars, left canine (damaged), and lateral incisors, and from the mandible the right second premolar, first premolars, canines, and incisors. The permanent mandibular right third molar, mandibular left second molar, mandibular right first molar, mandibular left second premolar, and possibly the maxillary third molars were lost antemortem.

Cariou lesions are on the occlusal surface of the maxillary left first molar; interproximal surfaces of the maxillary second premolars, maxillary left first premolar (two lesions), and mandibular left first premolar; cervical areas of the maxillary left first molar and maxillary left second premolar; and large surfaces of the maxillary left canine and mandibular right second molar. Alveolar abscesses are associated with the maxillary left first molar, maxillary right first premolar, and mandibular right second molar.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the left parietal.

The extent of cranial suture closure suggests an age at death of 20 to 27 years. Skeletal morphology suggests male sex.

A circular defect about 2.9 mm in diameter and with sharp margins is on the talus.

BURIAL 393.—FN: Coffin nails were the only associated artifacts. The size of the coffin outline suggests the burial was of a newborn.

Cranium fragments from an infant are present. Their preservation corresponds to weathering stage 5.

BURIAL 394.—FN: Nails and intact sections of the coffin's walls and floor were in association with this burial. Artifacts recovered were a large copper pin from the sternal region (Beynon, 1989:105) and a single lithic flake from screened soil.

The incomplete remains are of an adult. Bones present are the frontal (1), both parietals (3), left (1) and right (3) temporals, left (1) and right (3) zygomatics, both maxillae (1), both palatines (1), mandible (1), left clavicle (3), left scapula (3), cervical vertebrae, eight thoracic vertebrae, rib fragments, proximal epiphysis (3) of the left humerus, and middle third (3) of the left femur.

All permanent teeth are present, in occlusion, except the third molars (not in occlusion). Thirty of the teeth show evidence of enamel defects.

Enamel defects consist of linear horizontal grooves on the maxillary left (2.3 mm) and right (2.7 mm) first molars, and the following mandibular teeth: right second molar (3.3 mm), left (2.7 mm) and right (2.6 mm) first premolars, left (4.9 mm) and right (5.3 mm) canines, left (two defects, 2.4 mm, 3.0 mm) and right (two defects, 2.4 mm, 3.0 mm) lateral incisors, and left (two defects, 1.9 mm, 3.2 mm) and right (two defects, 1.9 mm, 3.2 mm) central incisors; discrete-boundary hypocalcification on the following maxillary teeth: left (2.5 mm) and right (2.4 mm) third molars, left (1.5 mm) and right (1.4 mm) second molars, left (2.3 mm) and right (0.3 mm) first molars, left (1.7 mm) and right (1.3 mm) second premolars, left (2.3 mm) and right (1.1 mm) first premolars, left (2.8 mm) and right (1.7 mm) canines, left lateral incisor (3.2 mm), and left (2.5 mm) and right (3.4 mm) central incisors; and discrete-boundary hypocalcification on the following mandibular teeth: left third molar (n/a), left (3.0 mm) and right (2.4 mm) second molars, left (1.7 mm) and right (1.9 mm) first molars, left (1.9 mm) and right (1.3 mm) second premolars, left (1.0 mm) and right (0 mm) first premolars, and left (2.5 mm) and right (2.8 mm) canines.

Preservation of the remains corresponds to weathering stage 5. Green stains (copper) and black stains are on the remains.

The extent of dental formation and cranial suture closure suggest an age at death of likely 17 to 20 years. Cranial morphology suggests female sex.

The right maxillary first premolar is mesial to the right canine and is rotated 90°, so that the normally lingual cusp is on the mesial side of the tooth.

BURIAL 395.—FN: A coffin outline and nails were in association with this burial. No other artifacts were present.

Cranium fragments and teeth of an infant are present. Deciduous teeth, in occlusion, are the second molars, canines, maxillary right first molar, maxillary lateral incisors, mandibular first molars, mandibular left lateral incisor, and mandibular right central incisor. Permanent teeth, not in occlusion, are the maxillary first molars, maxillary left canine, mandibular left lateral incisor, and mandibular central incisors.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the remains.

The extent of dental formation suggests an age at death of about 1 year.

BURIAL 396.—FN: Nails and wood were found in association with this burial. No other artifacts were recovered.

Cranium fragments and the two deciduous mandibular second molars are present.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of about 6 months.

BURIAL 397.—FN: Coffin wood and nails were associated with this burial. No other artifacts were present. The coffin was sized for an infant.

Only the temporal bones (2) of an infant are present. Their preservation corresponds to weathering stage 5.

BURIAL 398.—FN: Nails were the only associated artifacts. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 399.—FN: A coffin outline, nails, tacks, and a small wire fragment recovered from the cranial region, suggesting the presence of a bonnet (Beynon, 1989:106), were in association with this burial. The size of the coffin suggests the burial was of a small infant.

The left temporal bone (2) of an infant is present. Its preservation corresponds to weathering stage 5.

BURIAL 400.—FN: Artifacts found in association with this burial were nails, wood fragments, and a pin in disintegrating fabric recovered from the cranial region.

Present are the following deciduous teeth, not in occlusion, of an infant: from the maxillae the second molars, left first molar, right canine, both lateral incisors, and left central incisor, and from the mandible the left second molar, right first molar, both canines, and left lateral incisor.

The extent of dental formation suggests an age at death of about 6 months.

BURIAL 401.—There are no field notes for this burial; no human remains were recovered.

BURIAL 402.—FN: Associated artifacts found were a coffin outline, nails, evidence of the coffin lid (in the middle of the coffin), and a section of the coffin's western side.

The incomplete remains are of an adult, probably female. Bones present are the frontal (1); both parietals (2); occipital (1); both temporals (1); left (2) and right (1) maxillae; mandible (1); sacrum (3); both ilia (3); first two cervical vertebrae; middle (1) and distal (2) thirds of the right humerus; left (2) and right (1) femora; proximal epiphysis (2) and proximal (2), middle (2), and distal (1) thirds and distal epiphysis (1) of the left tibia; right tibia (1); both calcanei; both tali; left cuboid; left first cuneiform; left foot navicular; and metatarsal fragments.

Permanent teeth present, in occlusion, from the maxillae are the left third molar, second molars, left first molar, left second premolar (damaged), left first premolar, canines, and left central incisor, and from the mandible the right third molar (root only), right second molar, right first premolar, right canine, and incisors (damaged). The permanent mandibular left molars and mandibular left second premolar were lost antemortem.

Carious lesions are on the occlusal surfaces of the maxillary left third and left second molars; interproximal surfaces of the following maxillary teeth: second molars, left first molar (two lesions), left first premolar (two lesions), canines, and left central incisor; interproximal surfaces of the following mandibular teeth: right second molar, right first premolar, and right canine; and large surfaces of the maxillary left second premolar and mandibular right third molar.

Enamel defects consist of linear vertical grooves on the maxillary left central incisor (n/a) and linear horizontal pits on the maxillary right second molar (n/a).

Preservation of the remains corresponds to weathering stage 5. Black staining is on the right femur and right humerus. Red staining is on the left femur.

Cranial suture closure, dental attrition, and dental loss suggest an age at death of 25 to 40 years. Skeletal robusticity suggests female sex.

The maxillary left second premolar is displaced lingually out of the tooth row, and a moderately large Carabelli's cusp is visible on the maxillary left first molar.

Femur length is 43.5 cm, suggesting a living stature of about 162 cm (5 ft 3.7 in).

BURIAL 403.—Neither a grave outline nor remains were present, suggesting this feature was probably not a grave.

BURIAL 404.—FN: Nails and a single clay pipestem were the only associated artifacts. The burial appeared to have been previously disturbed.

No human remains were recovered.

BURIAL 405.—FN: Nails, wood fragments, and a coffin outline were in association with this burial. Traces of orange paint were on the wood and in the soil. No other artifacts were present.

Present are the deciduous maxillary left molars and mandibular second molars, not in occlusion, of an infant probably 0.8 to 1.5 years of age.

BURIAL 406.—FN: A coffin outline and plain and ornamental nails were within this burial. No other artifacts were present. The size of the coffin outline suggests the burial was of a newborn.

No human remains were recovered.

BURIAL 407.—FN: Only a coffin outline and plain and decorative nails were found in association with this burial. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 408.—FN: Nails, a porcelain button, and tacks, which surrounded the perimeter of the coffin, were associated with this burial. A braid of hair about 18 cm long was also present.

The incomplete remains are of a child. Bones present are the occipital (2), right petrous portion of the temporal (2), other small cranium fragments, vertebrae fragments, and diaphyses (3) of the femora and tibiae.

The deciduous right maxillary second molar (damaged), in occlusion, is present.

Permanent teeth present, in occlusion, are the maxillary first molars and incisors (damaged) and the mandibular first molars (damaged). Teeth not in occlusion are the second molars, maxillary premolars, maxillary left canine, and mandibular right second premolar.

Cariou lesions are on the occlusal and interproximal surfaces of the deciduous molar and the occlusal surfaces of the permanent maxillary first molars and mandibular left first molar.

Enamel defects in the permanent dentition consist of linear horizontal grooves on the maxillary left (5.0 mm) and right (4.7 mm) first premolars, linear horizontal pits on the maxillary right first premolar (5.2 mm), and nonlinear arrays of pits on the maxillary left canine (5.7 mm).

Preservation of the remains corresponds to weathering stage 5. Black stains are on the remains.

The extent of dental formation suggests an age at death of 5 to 7 years. The braided hair suggests female sex.

BURIAL 409a.—Present are what appear to be cranium fragments from an infant.

BURIAL 409b.—FN: The only associated artifacts found were a coffin outline with some floor wood still intact, nails, and one screw.

The incomplete remains are of an adult, likely male (Figure 61). Bones present are the frontal (1); both parietals (1); occipital (2); both temporals (1); bones of the cranial face (1); mandible (2); left (1) and right (2) clavicles; sacrum (3); both scapulae (2); left (3) and right (2) ilia; left (2) and right (3) ischia; right patella (3); all cervical vertebrae; nine thoracic vertebrae; left first rib; four left and three right other ribs; proximal epiphysis (2) and



FIGURE 61.—Burial 409b, general view.

proximal (2) and middle thirds (3) of the left humerus; proximal epiphysis (2) and proximal (3), middle (2), and distal (3) thirds of the right humerus; middle third (2) of the left radius; diaphysis (3) of the right radius; middle third (2) of the left ulna; proximal (2) and middle (3) thirds of the right ulna; distal epiphysis (2) and diaphysis (2) of the left femur; proximal epiphysis (2) and diaphysis (2) of the right femur; proximal (3), middle (2), and distal (3) thirds of the left tibia; diaphysis (3) of the right tibia; left talus; and one metatarsal, side and digit undetermined.

Permanent teeth present, in occlusion, from the maxillae are all teeth except the left third molar, present but impacted, and the left first molar and left first premolar, lost antemortem, and from the mandible the left first molar (damaged), premolars, canines, and incisors. The mandibular second and third molars and mandibular right first molar were lost antemortem.

Carious lesions are on the occlusal surface of the maxillary right first molar; interproximal surfaces of the maxillary right premolars, maxillary left second premolar, mandibular right second premolar, and mandibular central incisors; and large surface of the mandibular left first molar. Two lingual abscesses are associated with the maxillary right first molar. A buccal abscess is associated with the maxillary right second premolar.

Enamel defects consist of linear horizontal grooves on the maxillary right first premolar (2.5 mm), maxillary left (2.9 mm) and right (2.8 mm) canines, mandibular left (4.8 mm) and right (4.5 mm) first premolars, and mandibular left lateral incisor (3.1 mm).

Preservation of the remains corresponds to weathering stage 3.

Cranial suture closure, dental attrition, and dental loss suggest an age at death of 30 to 40 years. Pelvic and other skeletal morphology suggest male sex.

The dentition displays evidence of the use of a pipe on both the left and right sides (Figure 62). Semicircular wear facets are on the distal aspect of the maxillary left central incisor, the full occlusal surface of the maxillary left lateral incisor (this tooth is peg-shaped and diminutive), and the mesial surface of the left maxillary canine (Figure 63). The left mandible displays alterations on the distal two-thirds of the occlusal surface of the lateral incisor and the mesial half of the occlusal surface of the canine. The diameter of the entire wear area is about 7.7 mm.

The right maxilla displays an alteration on the distal three-fourths of the occlusal surface of the lateral incisor and the mesial surface of the canine (Figure 64). In the right mandibular dentition, the alterations involve the full occlusal surface of the canine and the mesial occlusal third of the first premolar. The perforation measures about 6.3 mm.

Evidence of an underbite malocclusion is present.

BURIAL 410.—FN: Nails and wood fragments were in association with this burial. No other artifacts were present.

Both temporals (2), one long-bone fragment, and the following deciduous teeth, not in occlusion, of a young infant are present: from the maxillae the left central incisor and left molars, and from the mandible the molars, left lateral incisor, and central incisors.

The extent of dental formation suggests an age at death of birth to 6 months.

BURIAL 411.—FN: A coffin outline and nails were the only associated artifacts. The size of the coffin outline suggests the burial was of an adult.

No human remains were recovered.

BURIAL 412a, b.—FN: Two individuals were within this burial. The notes suggest that they were originally in separate graves. Nails and pins were the only associated artifacts.

Only one skeleton was present. The incomplete remains are of an infant. Bones present are the frontal (2), right temporal (2), right zygomatic (1), and mandible (3).

Deciduous teeth present in occlusion are the maxillary right first molar, maxillary right lateral incisor, mandibular first molars, and mandibular incisors. Those not in occlusion are the maxillary right second molar, mandibular second molars, and mandibular left canine.

Permanent teeth present, not in occlusion, are the maxillary right first molar and mandibular central incisors.

Preservation of the remains corresponds to weathering stage 3.

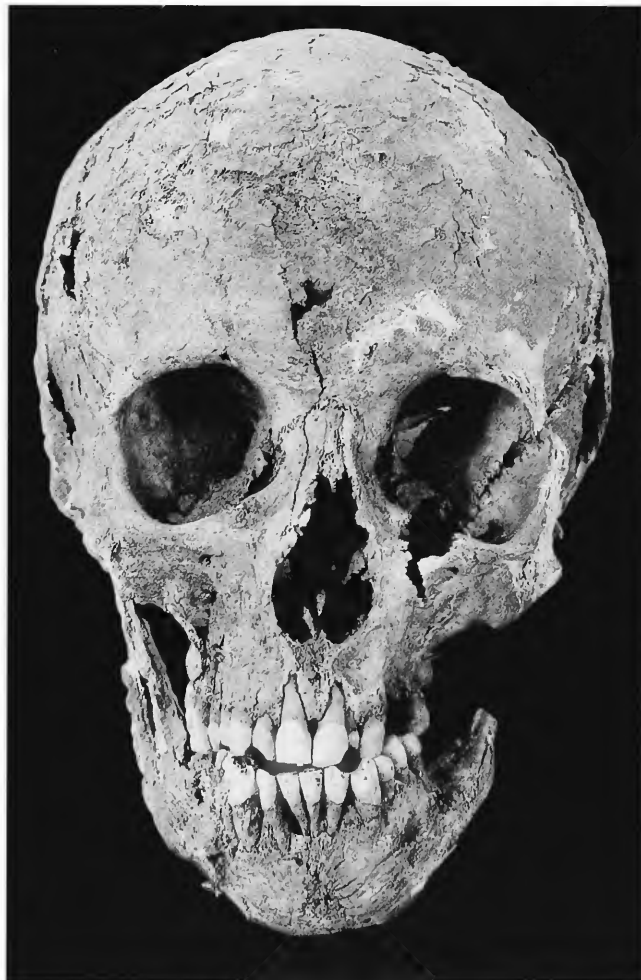


FIGURE 62.—Skull of burial 409b.



FIGURE 63.—Pipewear on left side of dentition, burial 409b.



FIGURE 64.—Pipewear on right side of dentition, burial 409b.

The extent of dental formation suggests an age at death of about 1.4 years.

New, fine bone with minimal remodeling is on the internal surface of the occipital just right of the midline (Figure 65). The area involved is about 10×25 mm.

BURIAL 413.—No records exist. Apparently, this number was incorrectly assigned. No human remains were recovered.

BURIAL 414.—FN: Artifacts found in association with this burial include plain and ornamental nails, hair pins recovered from the cranial region, tacks, and cloth.

The incomplete remains are of an adult, probably female. Present are the bones of the cranial vault; pelvis fragments; middle (3) and distal (3) thirds and distal epiphysis (3) of the left humerus; proximal epiphysis (2) and proximal (3) and middle (3)

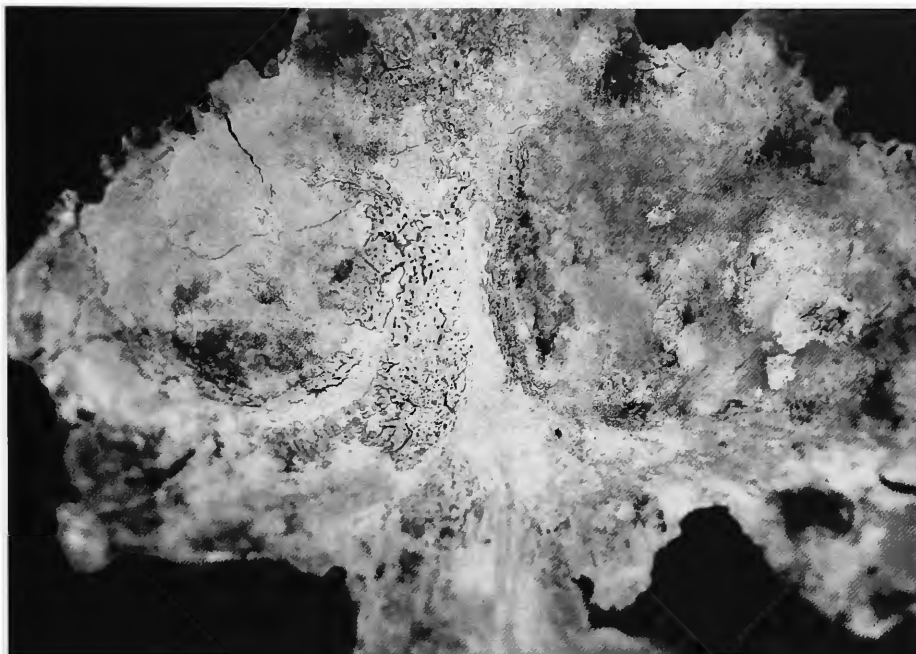


FIGURE 65.—Abnormal bone deposits, endocranial occipital, burial 412.

thirds of the left radius; middle third (3) and distal epiphysis (3) of the left ulna; middle third (3) of the right ulna; both femora (3); proximal epiphysis (3) and proximal (2), middle (2), and distal (3) thirds of the left tibia; proximal epiphysis (3), middle third (3), and distal epiphysis (3) of the right tibia; left calcaneus; right talus; and six metatarsals, side and digits undetermined.

Permanent teeth present, in occlusion, are the maxillary left third molar and maxillary right canine.

Preservation of the remains corresponds to weathering stage 4.

Cranial suture closure suggests an age at death of 20 to 35 years. The presence of hairpins suggests female sex, although the skeleton is robust.

The proximal left radius displays arthritic changes, suggesting possible healed trauma to this area.

The maxillary right canine shows unusual wear (Figure 66) on the mesial surface. The alteration has a scooped-out appearance and is wider at the CEJ than at the occlusal tip.

BURIAL 415.—FN: This burial was an empty grave. No artifacts or human remains were recovered.

BURIAL 416.—FN: Artifacts found in association with this burial were plain and ornamental nails, cloth, wood, rickrack, and hair pins recovered from the cranial region.

The very fragmentary cranial and postcranial remains are of an adult, probably female. Also present is light to medium brown hair with a maximum length of 38 mm. Present are the bones of the cranial vault (2), mandible (2), left ilium (3), middle (2) and distal (2) thirds of the left humerus, diaphysis (2) of the right humerus, proximal third (3) of the left radius, middle third (3) of the right radius, proximal (2) and middle (2) thirds of the left ulna, proximal third (2) of the right ulna, proximal epiphyses (3) and diaphyses (2) of the femora, and one talus (side undetermined).



FIGURE 66.—Unusual wear on maxillary right canine, mesial surface, burial 414.

Permanent teeth present, in occlusion, from the maxillae are the right third molar, left canine, and right lateral incisor, and from the mandible the third molars, right second molar, and left second premolar.

Carious lesions are on the interproximal surfaces of the maxillary right third molar and mandibular right second molar.

Preservation of the remains corresponds to weathering stage 4.

Dental attrition and cranial suture closure suggest an age at death of 25 to 35 years. Skeletal gracility suggests probable female sex.

BURIAL 417.—FN: A coffin outline, nails, and wood fragments were in association with this burial. No other artifacts were present.

The fragmentary cranial and postcranial remains are of an adult. Bones present are both temporals (2); other cranium fragments; proximal and middle thirds (3) of the left humerus; distal third (3) and distal epiphysis (3) of the right humerus; epiphyses (2) and middle (2) and distal (2) thirds of the left femur; right femur (2); epiphyses (2) and proximal (2), middle (1), and distal (2) thirds of the left tibia; epiphyses (2) and proximal (2), middle (1), and distal (1) thirds of the right tibia; distal third (2) and distal epiphysis (1) of the left fibula; middle (3) and distal (1) thirds and distal epiphysis (1) of the right fibula; both calcanei; both tali; both cuboids; and three left and two right metatarsals of undetermined digits.

Permanent teeth present, in occlusion, are the maxillary left molars, maxillary right third molar, maxillary right second molar, and mandibular left canine.

Cariou lesions are on the occlusal surface of the maxillary left third molar and interproximal surfaces of the maxillary left first and second molars.

Preservation of the remains corresponds to weathering stage 3.

Dental attrition suggests an age at death of 30 to 40 years.

A slight notch on the lower left canine may be due to dental attrition (no opposing teeth are present). Very slight arthritic liping is on most bones of the ankle. A radiograph of the distal tibia showed no lines of arrested growth.

BURIAL 418.—FN: Nails, coffin ornaments, fabric fragments, and intact sections of the wooden coffin floor were in association with the human remains.

Present are the petrous portions of the temporals (2) and partial sphenoid of an individual probably over 10 years of age.

Preservation of the remains corresponds to weathering stage 4.

The petrous portions of the temporals are about of adult size, and the tympanic dehiscence is closed. The thinness of the bone, however, suggests the individual was a subadult, probably in late adolescence.

BURIAL 419.—FN: Nails were the only associated artifacts.

The fragmentary cranial and postcranial remains are of a child. Bones present are the frontal (2); both parietals (2); occipital (3); both temporals (2); both maxillae (1); both palatines (1); mandible (3); right ilium (3); first two cervical vertebrae; proximal (2), middle (2), and distal (1) thirds and distal epiphyses (1) of the femora; left tibia (1); epiphyses (1) and diaphyses (2) of the right tibia; diaphyses (2) of the fibulae; both calcanei; both tali; right third cuneiform; and right fifth metatarsal.

Deciduous teeth present, in occlusion, are the second molars, maxillary first molars, and mandibular right first molar.

Permanent teeth present, in occlusion, are the maxillary right second molar, maxillary left first molar, mandibular first molars, and mandibular incisors. Those not in occlusion from the maxillae are the right third molar, left second molar, left premolars, left canine, and lateral incisors (damaged), and from the mandible the second molars, premolars, and canines.

Cariou lesions in the deciduous dentition are on the interproximal surfaces of the maxillary second left molar, mandibular second molars, and mandibular right first molar.

Enamel defects in the permanent dentition consist of linear horizontal grooves (Figure 67) on the maxillary first premolar (1.8 mm), mandibular left (5.6 mm) and right (5.2 mm) second premolars, and mandibular left (3.3 mm) and right (2.6 mm) first premolars, and linear horizontal pits (Figure 67) on the maxillary right second molar (3.0 mm), maxillary right second premolar (4.2 mm), and mandibular right (3.2 mm) and left (two lesions, 4.6 mm, 6.8 mm) second molars.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 8.6 years.

Healed cribra orbitalia is visible in the orbits.

BURIAL 420.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

Present are the petrous portions of both temporals (2) of an infant. Their preservation corresponds to weathering stage 5.

BURIAL 421.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

Present are the tooth fragments of a child. Deciduous teeth, in occlusion, are the second molars, maxillary left first molar, maxillary right canine, mandibular first molars, and mandibular right canine. The permanent maxillary right first molar is also present but is not in occlusion.

Dental calcification suggests an age at death of about 1.6 years.

BURIAL 422.—FN: Coffin nails and a lithic flake were the only associated artifacts. Only the upper aspect of a previously disturbed grave was found; no human remains were recovered.

BURIAL 423.—FN: Only a coffin outline with red paint, nails, and wood fragments were in association with this burial.

The extremely fragmentary remains are of an adolescent. Bones present are the frontal (3); both parietals (2); occipital (3);



FIGURE 67.—Enamel defects, burial 419.

both temporals (2); both maxillae (3); mandible (2); vertebrae fragments; proximal (3) and middle (2) thirds of the left humerus; proximal (3), middle (2), and distal (3) thirds of the right humerus; proximal third (3) of the right ulna; epiphyses (2) and proximal (3), middle (2), and distal (2) thirds of the left femur; proximal epiphysis (3) and proximal (3), middle (2), and distal (2) thirds of the right femur; proximal epiphysis (3) and middle (2) and distal (2) thirds of the left tibia; proximal (3), middle (2), and distal (2) thirds of the right tibia; one middle hand phalanx; one calcaneus, side undetermined; and both tali.

Permanent teeth present, in occlusion, are the third molars, second molars, first molars (left maxillary damaged), and premolars; from the maxillae the left canine, left incisors, right lateral incisor, and right central incisor (damaged); and from the mandible the right canine (damaged), left central incisor, and right incisors.

Carious lesions are on the interproximal surfaces of the maxillary right first molar and maxillary right premolars and large surface of the maxillary left first molar.

Preservation of the remains corresponds to weathering stage 5. Green staining is on the occipital; red staining is on the distal right humerus. A small amount of light-colored hair, about 40 mm long, is also present.

The extent of dental formation and epiphyseal fusion suggest an age at death of 16.5 to 17.5 years. Sex is difficult to determine; the chin is moderately square and prominent, but female sex cannot be ruled out.

The maxillary incisors are slightly shovel-shaped, and the lateral incisors show tubercula dentale.

BURIAL 424.—FN: A coffin outline, wood fragments, nails, and tacks were in association with the human remains. No other artifacts were recovered.

The extremely fragmentary cranial and postcranial remains are of a middle-aged adult. Bones present are the left (2) and right (3) parietals; occipital (2); left (3) and right (2) temporals; mandible (3); pelvis fragments; three cervical vertebrae; diaphysis (2) of the right humerus; proximal (3), middle (2), and distal (3) thirds of the right radius; proximal third (3) of the left ulna; middle third (2) of the right ulna; proximal epiphysis (2) and proximal (3), middle (2), and distal (2) thirds of the left femur; and proximal epiphysis (2) and proximal third (2) of the right femur.

Permanent teeth present are the maxillary right first and second molars.

Cariou lesions are on the occlusal surfaces of the maxillary right first and second molars and interproximal surface of the maxillary right second molar.

Preservation of the remains corresponds to weathering stage 5.

General skeletal indicators suggest an age at death of 35 to 50 years.

BURIAL 425.—FN: Only nails and wood fragments were associated with this burial. The size of the grave outline suggests the burial was of a small child.

One unidentifiable bone fragment is present.

BURIAL 426.—FN: A coffin outline and plain and decorated nails were in association with this burial. No other artifacts were present.

Present are cranium fragments, both temporals (2), and the following deciduous teeth, in occlusion, of an infant: from the maxillae the left second molar, first molars, canines, lateral incisors, and left central incisor, and from the mandible the first molars and left lateral incisor.

Preservation of the remains corresponds to weathering stage 5.

Dental development and the lack of dental attrition suggest an age at death of 0.8 to 1.5 years.

BURIAL 427.—FN: Nails, wood fragments, and one straight pin were found in association with this burial.

Cranium fragments, the right temporal (2), and the deciduous maxillary left molars, not in occlusion, of an infant are present.

Preservation of the remains corresponds to weathering stage 3.

Dental calcification suggests an age at death of about 2 months.

BURIAL 428a, b.—FN: Nails and wood fragments were the only associated artifacts.

The moderately well-preserved calvarium and very poorly preserved postcrania are of an adult, possibly female (428a). No teeth or face are present; the cranium was quite small and round in shape. Also present (bags 2835 and 2836) are the cranium fragments and teeth of a 2-year-old child (428b). These were likely mislabeled rather than, as field notes indicated, commingled with this burial.

Bones of the immature individual are the occipital (3) and both temporals (2). Deciduous teeth present, in occlusion, are the molars and canines.

Preservation of the remains corresponds to weathering stage 4.

Bones of the mature individual are the frontal (2); both parietals (1); occipital (2); left (1) and right (2) temporals; mandible (3); right ischium (2); right patella (2); fragments of cervical vertebrae; distal third of the right humerus (3); epiphyses (2) and proximal (3), middle (2), and distal (2) thirds of the left femur; right femur (2); epiphysis (2) and diaphysis (3) of the left tibia; epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the right tibia; and middle third of the left fibula (3).

Permanent teeth present, not in occlusion, are the mandibular left canine and mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 4.

Based only on cranial suture closure, the age at death was 30 to 40 years.

The linea aspera on the femora were quite well developed, and the fovea capitis of both femora were enlarged, with deep pitting on the right side. A small (1 mm) pit was also on the head of the left femur.

BURIAL 429.—FN: Nails and wood fragments were the only associated artifacts. The coffin was sized for a small infant.

No human remains were recovered.

BURIAL 430.—FN: Nails and a cloth fragment adhering to a section of the coffin's foot end were associated with this burial. The coffin was sized for a small infant.

No human remains were recovered.

BURIAL 431.—FN: Nails, tacks, wood fragments, and cloth were recovered in association with this burial. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 432.—FN: This grave was empty. No artifacts or human remains were present.

BURIAL 433.—FN: Nails were the only associated artifacts.

Present is the petrous portion of the temporal (2) of a late-term fetus or small infant. Its preservation corresponds to weathering stage 5.

BURIAL 434.—FN: This burial was empty. Nothing was recovered.

BURIAL 435.—FN: This burial was empty. Nothing was recovered.

BURIAL 436.—FN: This burial was empty. Nothing was recovered.

BURIAL 437.—FN: A coffin outline and nails were in association with this burial. One shell button from beneath the cervical vertebra, one bone button, and a copper pin were also recovered.

The moderately well-preserved cranial and postcranial remains are of an adult male. Present are the bones of the cranial vault (1); right zygomatic (1); mandible (2); both clavicles (3); sacrum (3); both scapulae (2); both ilia (3); both ischia (3); both patellae (2); all cervical vertebrae; seven thoracic vertebrae; two lumbar vertebrae; two left ribs and one right rib; epiphyses (2) and proximal (1), middle (1), and distal (2) thirds of the left humerus; epiphyses (2) and diaphysis (1) of the right humerus; left radius (2); proximal epiphysis (2) and remainder (1) of the right radius; proximal epiphysis (1) and proximal (1) and middle (2) thirds of the left ulna; distal epiphysis (2) and remainder (1) of the right ulna; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the left femur; epiphyses (2), proximal third (1), and remainder (2) of the right femur; proximal epiphysis (3), middle third (1), and remainder (2) of the left tibia; epiphyses (2), proximal third (1), and remainder (1) of the right tibia; distal epiphysis (1) and diaphysis (2) of the left fibula; proximal epiphysis (3) and remainder (2) of the right fibula; right hand navicular; right greater multangular; right lesser multangular; right capitate; right hamate; right first three metacarpals; one other metacarpal; both calcanei; both tali; right cuboid; right third cuneiform; right foot navicular; right fifth metatarsal; and one middle foot phalanx.

Permanent teeth present, in occlusion, from the maxillae are the right third molar, left second molar, right premolars, and canines, and from the mandible the left second molar, both first molars, left premolars, left canine, and left lateral incisor. Permanent teeth lost antemortem were the mandibular right second molar and mandibular right lateral incisor.

Carious lesions are on the occlusal surface of the mandibular left second molar and interproximal surfaces, in mandibular teeth, of the second molars, left first molar, and left lateral incisor.

Preservation of the remains corresponds to weathering stage 3. A small amount of light brown hair, 19 mm long, is also present. Copper staining is visible on the left parietal and left clavicle.

Cranial suture closure, arthritic changes, and dental conditions suggest an age at death of 35 to 50 years. The general bone size suggests likely male sex.

This individual exhibits a number of pathological conditions. Most noticeably, the left humerus shows a very well-remodeled fracture of the midshaft, with lateral abnormal bowing. Radiographs show poorly defined cortex in the midshaft area. The fracture was apparently angular, with the superior end on the medial surface. The external surface is smooth and very well remodeled. Abnormal periosteal bone formation, active at the time of death, is visible on the lateral surfaces of both tibiae, on the proximal half of each diaphysis, in a narrow strip ranging in width from about 5 to 15 mm. A cortical defect, 7 × 8 mm, is on the distal articular surface of the right tibia. Slight osteoarthritic lipping is visible on the proximal articular surface of the ulnae and the distal right radius. Slight osteophyte formation is on all cervical vertebrae. Enthesophytes are visible in the right obturator foramen.

Dental health was generally poor. All third molars, except a possible right maxillary, were either missing congenitally or were lost some time before death. Malocclusion led to an unusual wear pattern, with especially extensive tooth loss on the lingual surface of the mandibular incisors. Alveolar resorption is present, and the right maxillary third molar shows hypercementosis over the lower three-fourths of the root (Figure 68). Measurements of the femur and tibia suggest a living stature of about 168 cm (5 ft 6.1 in).

BURIAL 438.—FN: A coffin outline, decorative and plain nails, and decorative screws were associated with this burial. Other artifacts recovered were a white porcelain button, copper rickrack, and coffin-cloth fragments. The coffin was sized for an older infant or small child.

No human remains were recovered.

BURIAL 439.—FN: Nails were associated with this burial, and one lithic was recovered. No other artifacts were present. The coffin was sized for a small child.

Present are several unidentifiable long-bone fragments of adult cortical thickness.



FIGURE 68.—Hypercementosis of the right maxillary third molar, burial 437.

BURIAL 440.—FN: A coffin outline, plain and decorative nails, and wood fragments were found in association with this burial. No other artifacts were recovered.

Present are tooth fragments, including the deciduous maxillary left first molar, in occlusion, and an unidentifiable bone fragment of an infant probably between the ages of 6 months to 1 year.

BURIAL 441.—FN: A coffin outline, plain and ornamental nails, fabric, rickrack, and apparent coffin handles were in association with this burial. The coffin was sized for a small infant.

Present are the petrous portion of a left temporal (2) and femur fragment of an infant. Their preservation corresponds to weathering stage 3.

BURIAL 442.—FN: The only artifacts associated with this burial were plain and decorative coffin nails and two unidentified copper ornaments.

Present are the petrous portions of the temporals (2) and several teeth of an infant: the deciduous maxillary right lateral incisor, not in occlusion, and the permanent maxillary left canine and mandibular right canine, not in occlusion.

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of about 9 months.

BURIAL 443.—FN: Only a coffin outline, wood fragments, and nails were found in association with this burial. The coffin outline was the size of a newborn.

No human remains were recovered.

BURIAL 444.—FN: Found in association with this burial were a coffin outline with wood at most of the perimeter and fabric attached in various sections, plain nails, and four ornamental nails (two at either end of coffin). Copper staining in the northwest corner of the coffin may be evidence of rickrack. The coffin was sized for a newborn.

No human remains were recovered.

BURIAL 445.—FN: Nails and two unidentifiable metal concentrations at either end were in association with this burial. No other artifacts were present. The size of the coffin outline suggests the burial was of an infant or small child.

No human remains were recovered.

BURIAL 446.—FN: A coffin outline with wood around much of its perimeter, plain and decorative nails, some with ornamental escutcheons, and fabric coffin lining were in association with this burial. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 447.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

The incomplete remains are of an adult, probably female. Bones present are the frontal (1); both parietals (2); occipital (2); left (1) and right (2) temporals; left (1) and right (2) zygomatics; both maxillae (2); left (3) and right (2) palatines; mandible (2); both clavicles (2); sacrum (2); both scapulae (2); both ilia (2); both pubic bones (2) both patellae (2); second cervical vertebra; three other cervical vertebrae; all thoracic vertebrae; one lumbar vertebra; left first rib; nine left and eight right other ribs; proximal epiphysis (2) and remainder (1) of the left humerus; both epiphyses (2) and diaphysis (1) of the right humerus; left radius (2); proximal third (1) and remainder (2) of the right radius; proximal

epiphysis (1), proximal third (1), and remainder of the diaphysis (2) of the left ulna; proximal epiphysis (1) and remainder of the diaphysis (2) of the right ulna; both epiphyses (2) and diaphysis (1) of the left femur; right femur (2); middle third (1) and remainder (2) of the left tibia; right tibia (2); distal epiphyses (2) and diaphyses (2) of the fibulae; left lunate; left greater multangular; hamate; right second and third metacarpals; three other metacarpals, side and digits undetermined; two proximal hand phalanges; two middle hand phalanges; two distal hand phalanges; both calcanei; both tali; both cuboids; both first cuneiforms; right second and third cuneiforms; both foot naviculars; right first metatarsal; both second and third metatarsals; left fourth metatarsal; and one middle foot phalanx.

Permanent teeth present, in occlusion, are all maxillary teeth except the right third molar and all mandibular teeth except the third molars and right first and second molars. The missing mandibular teeth were all lost antemortem.

Cariou lesions are on the interproximal surfaces, in maxillary teeth, of the right first premolar, right canine, left lateral incisor, and right central incisor, and in mandibular teeth, the first premolars, right canine, and right lateral incisor; cervical areas of the maxillary right second molar and the following mandibular teeth: left second molar, left canine, left lateral incisor (two lesions), and central incisors (two lesions on the left); and large surfaces of the maxillary left second molar and mandibular left first molar. An alveolar abscess is associated with the mandibular left first molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the mandible, long bones, cranial vault, and vertebrae.

Cranial suture closure, dental features, and arthritic change suggest an age at death of 30 to 40 years. General skeletal morphology suggests likely female sex.

Maximum length of the femur is 44.2 cm, suggesting a living stature of about 163.3 cm (5 ft 4.3 in).

BURIAL 448.—FN: A coffin outline and nails were in association with this burial, and a copper pin was recovered from the thoracic region.

The incomplete remains are of an adult, likely female. Bones present are the frontal (1); both parietals (2); occipital (2); both temporals (1); both zygomatics (2); both maxillae (2); left (1) and right (2) palatines; mandible (2); left (3) and right (2) clavicles; left (3) scapula; left (2) and right (3) ilia; all cervical vertebrae; one left and two right ribs; epiphyses (3) and diaphysis (2) of the left humerus; distal epiphysis (3) and diaphysis (3) of the right humerus; proximal epiphysis (3) and proximal (2) and distal (2) thirds and distal epiphysis (2) of the left radius; diaphysis (3) of the right radius; proximal epiphysis (3) and diaphysis (2) of the left ulna; proximal epiphysis (2) and proximal (2) and middle thirds (3) of the right ulna; proximal epiphysis (3) and diaphysis (3) of the left femur; diaphysis (3) of the right femur; proximal epiphysis (2), proximal third (2), and middle (3) third of the left tibia; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the right tibia; middle (2) and distal (2) thirds and distal epiphysis (2) of the left fibula; middle third (2) and distal epiphysis (2) of the right fibula; both calcanei; both

tali; right cuboid; left second cuneiform; two left metatarsals, digits undetermined; right first, second, third, and fourth metatarsals; and one proximal foot phalanx.

Permanent teeth present, in occlusion, are the incisors; from the maxillae the second molars, first molars (damaged), second premolars (right damaged), and right canine; and from the mandible the right second premolar, first premolars, and canines. Permanent teeth lost antemortem were the maxillary left third molar, maxillary first premolars, mandibular left third molar, and mandibular first and second molars.

Cariou lesions are on the occlusal surface of the maxillary left second molar (two lesions); interproximal surfaces of, in maxillary teeth, the left second molar, left second premolar (two lesions), right canine (two lesions), and lateral incisors and, in mandibular teeth, the left first premolar, left (two lesions) and right lateral incisors, and left (two lesions) and right (two lesions) central incisors; cervical areas of the maxillary left second molar; and large areas of the maxillary right first and second molars, maxillary right second premolar, and mandibular right premolars. An alveolar abscess is in the maxillary right first molar.

One enamel defect, diffuse-boundary hypocalcification, is on the maxillary right second molar.

Preservation of the remains corresponds to weathering stage 5. Slight iron-type staining is on the frontal. Black staining is on the long bones, vertebrae, and cranium.

Cranial suture closure, dental morphology, and arthritic change suggest an age at death of 25 to 35 years. Pelvic and general skeletal morphology suggest probable female sex.

BURIAL 449.—FN: Artifacts found in association with this burial were a coffin outline, nails, tacks, fragments of the coffin floor, and a bone button recovered beneath the vertebra between the clavicles.

The generally well-preserved remains are of an adult female. Bones present are the cranium (1); both zygomatics (1); mandible (1); left (2) and right (1) clavicles; sacrum (2); both scapulae (2); both ilia (2); both ischia (2); left pubis (2); both patellae (2); all cervical vertebrae; five thoracic vertebrae; three lumbar vertebrae; both first ribs; four left and two right other ribs; epiphyses (2) and diaphyses (1) of the humeri, radii, femora, and tibiae; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds of the left ulna; proximal epiphysis (2) and proximal (1), middle (1), and distal (3) thirds of the right ulna; proximal (3), middle (2), and distal (2) thirds and distal epiphysis (2) of the left fibula; and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the right fibula.

Permanent teeth present, in occlusion, are the first premolars, canines, and incisors; from the maxillae the left third molar, first molars, and second premolars (right damaged); and from the mandible the third molars, left second molar, first molars (left damaged), and second premolars.

Cariou lesions are on the occlusal surface of the mandibular left second molar; interproximal surfaces of the maxillary left second premolar and mandibular left second molar; cervical areas of, from the maxillae, the left third molar, both first molars, left second premolar, right first premolar, both canines, all four

incisors, and, from the mandible, the third molars, left second molar, right first molar, premolars, canines, and incisors; and large surfaces of the maxillary right premolars and mandibular left first molar. An alveolar abscess is on the maxillary right second premolar (Figure 69).

Enamel defects consist of linear horizontal grooves on the maxillary left (4.9 mm) and right (4.7 mm) canines and mandibular left (4.5 mm) and right (4.3 mm) canines.

Preservation of the remains corresponds to weathering stage 3. Green staining is on the right parietal, which has associated medium brown hair (about 9 mm in length) and tissue.

Cranial suture closure, arthritic change, and dental morphology suggest an age at death of 27 to 33 years. Pelvic and general skeletal morphology suggest female sex.

Healed cribra orbitalia is in the right orbit. The lesser tubercles on both humeri are greatly enlarged (Figure 70). This area represents the insertion for the subscapularis muscle, which rotates the humerus medially. Also enlarged is the medial surface of the right radial tuberosity, where the biceps brachii muscle inserts, acting as a flexor of the forearm. Arthritic change, in the form of moderate lipping, is on the distal right radius, the distal and proximal surfaces of the left first metacarpal, and the proximal surface of the right third metacarpal. The right navicular shows more extreme lipping and bony buildup on both surfaces. This woman was clearly using her arms for some arduous task. The centra of the vertebrae show no osteophytic change. Unusual non-metric traits include tympanic dehiscence (more severe in the right ear) and a partial metopic suture. She was also quite prognathic. Dental health was generally poor: alveolar resorption and calculus were noted, and tuberculum dentale is on the maxillary lateral incisors.

Femur length is 41.5 cm, suggesting a living stature of about 156.5 cm (5 ft 1.6 in).

BURIAL 450.—FN: Nails and a single copper straight pin were the only associated artifacts with this burial. Evidence of pink paint was on one nail.

The very well-preserved remains are of an infant. Bones present are the frontal (2), both parietals (1), occipital (1), both temporals (1), left zygomatic (1), left maxilla (1), mandible (1), both clavicles (1), both scapulae (1), left (3) and right (2) ilia, all vertebrae, first ribs, nine left and 10 right other ribs, diaphyses (1) of the humeri, proximal third (2) and remainder of the diaphysis (1) of the left radius, diaphysis (1) of the right radius, diaphyses (1) of the ulnae, proximal third (3) of the left femur, proximal (2) and middle (2) thirds of the right femur, middle (2) and distal (1) thirds of the left tibia, middle third (2) of the right tibia, both first metacarpals, remainder of the left metacarpals, three other right metacarpals, three proximal hand phalanges, and five distal hand phalanges.

Deciduous teeth present, not in occlusion, are, from the maxillae, the left molars, canines, left lateral incisor, and central incisors, and all teeth from the mandible.

Preservation of the remains corresponds to weathering stage 1.

Long-bone lengths and dental calcification suggest an age at death of 1 to 2 months.



FIGURE 69.—Alveolar abscess associated with maxillary second premolar, burial 449.



FIGURE 70.—Enlarged lesser tubercles on humeri, burial 449.

BURIAL 451.—FN: A partial coffin outline, nails, and wood fragments were in association with this burial. No other artifacts were recovered.

Present are a cranial-bone fragment and tooth fragments of an infant probably less than 6 months of age.

BURIAL 452.—FN: This burial was empty. No artifacts or human remains were present.

BURIAL 453.—FN: A coffin outline, plain nails, and ornamental nails were in association with this burial. No other artifacts were recovered. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 454.—FN: Nails and a fragment of wood were the only artifacts recovered with this burial. The coffin was sized for an infant.

BURIAL 455.—FN: A coffin outline and nails were in association with this burial. No other artifacts were present.

The extremely fragmentary remains are of an infant. Bones present are the temporals (2) and proximal (2) and middle (2) thirds of the tibiae. No teeth were present.

Preservation of the remains corresponds to weathering stage 3.

Based only on the size of bones, the age at death was probably newborn to 6 months.

BURIAL 456.—FN: Only a coffin outline and plain and ornamental nails were in association with this burial. The size of the coffin suggests the burial was of an infant.

No human remains were recovered.

BURIAL 457.—FN: Coffin nails, tacks, and wood fragments were in association with this burial. No other artifacts were present.

The extremely fragmentary postcranial remains are of a sub-adult. Field notes indicate that teeth and cranial remains recovered indicated an age at death of about 4 to 7 years.

BURIAL 458.—FN: A coffin outline, wood fragments, copper tacks with fabric, plain nails, and large and small ornamental nails were in association with this burial. No other artifacts were recovered.

The petrous portion of a left temporal (2) and tooth fragments of a child are present. Deciduous teeth present, not in occlusion, are the maxillary first molars and mandibular left first molar. The permanent maxillary left canine is present but is not in occlusion.

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of about 1.3 years.

BURIAL 459.—FN: Nails and a metal pin found beneath the cranium were the only associated artifacts.

The well-preserved remains are of an infant (Figure 71). Also present are the fragmentary remains of several long bones (right femur and tibia) of an adult.

Infant bones present are the bones of the cranial vault (1); both maxillae (1); mandible (1); both clavicles (1); both scapulae (1); both ilia (1); both ischia (1); six cervical vertebrae; all the thoracic and lumbar vertebrae; both first ribs; nine left and nine right other ribs; diaphysis (1) of the left humerus; proximal (2), middle (1), and distal (2) thirds of the right humerus; middle (2) and distal (1) thirds of the left radius; proximal (2), middle (1), and distal (1) thirds of the right radius; proximal (2), middle (1), and distal (1) thirds of the left ulna; proximal (2) and middle (1) thirds of the right ulna; proximal (1), middle (1), and distal (2) thirds of the femora; proximal (2), middle (1), and distal (2) thirds of the left tibia; proximal (2) and middle (2) thirds of the right tibia; middle thirds (2) of the fibulae; one metacarpal, side and digit unknown; three proximal hand phalanges; six middle hand phalanges; and two middle hand phalanges.



FIGURE 71.—Burial 459, general view.

Deciduous teeth present, not in occlusion, are the second molars, maxillary incisors, mandibular first molars, mandibular lateral incisors, and mandibular left central incisor.

Preservation of the remains corresponds to weathering stage 1.

Dental calcification and long-bone length suggest an age at death of 2 to 3 months.

BURIAL 460.—FN: Associated artifacts found were a coffin outline with rickrack on the wood at its perimeter, plain and decorative nails, coffin handles, a pocket knife found near the right hand, shoes, porcelain buttons, and metal buttons.

The fragmentary cranial remains are of a child. Bones present are the frontal (1), both parietals (2), occipital (3), left temporal (2), both maxillae (1), and mandible (3).

All deciduous teeth are present, in occlusion, except the maxillary left lateral incisor and mandibular left central incisor.

Permanent teeth, not in occlusion, from the maxillae are the right third molar, right second molar, and left first molar, and from the mandible the left second molar, first molars, premolars, canines, and incisors.

Cariou lesions are in the deciduous maxillary dentition on the interproximal surfaces of the molars and right incisors.

Enamel defects in the permanent mandibular dentition are linear horizontal grooves on the left (3.2 mm) and right (5.5 mm) canines, left lateral incisor (n/a), and left central incisor (4.3 mm); linear horizontal pits on the left (6.8 mm) and right (6.9 mm) canines; and single pits on the right lateral incisor (4.5 mm) and right central incisor (4.2 mm).

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of 4 to 5.1 years. The presence of the knife may suggest male sex.

BURIAL 461.—FN: A coffin outline, nails, and wood fragments were in association with this burial. No other artifacts were present.

The extremely fragmentary remains are of an infant. Bones present are the temporals (2), mandible (1), left clavicle (2), both scapulae (3), vertebrae fragments, left first rib, five left and two right other ribs, proximal and middle thirds (2) of the left humerus, and proximal third (2) of the right humerus.

Deciduous teeth present, not in occlusion, are the right first molars, maxillary left lateral incisor, maxillary right central incisor, and mandibular left central incisor.

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of about 2 months.

BURIAL 462.—FN: Nails and two copper pins were the only artifacts found in association with this burial.

No human remains were recovered, although field notes indicate that teeth were found. The grave size suggests the burial was of a young child.

BURIAL 463.—FN: A coffin outline and nails were found in association with this burial.

The poorly preserved remains are of an adult, probably male. Bones present are the frontal (3), left (3) and right (2) parietals, occipital (3), both temporals (2), both maxillae (3), both palatines (1), mandible (3), right scapula (3), left (2) and right (1) patellae, four cervical vertebrae, five thoracic vertebrae, left humerus (3), distal third (3) of the left radius, proximal epiphysis (3) and proximal third (3) of the left ulna, both femora (2), left tibia (2), distal third (3) and remainder (2) of the right tibia, both calcanei, both tali, left cuboid, right cuneiforms, left third cuneiform, right foot navicular, left fifth metatarsal, right metatarsals, and two metatarsals, side and digit undermined.

The permanent right maxillary second molar is present and in occlusion. This tooth displays two carious lesions, one on the occlusal surface and one on the interproximal surface.

Preservation of the remains corresponds to weathering stage 4. Some apparent rust is on the right acetabulum area.

The extent of cranial suture closure suggests an age at death of 35 to 50 years. General skeletal morphology suggests male sex.

Slight arthritic lipping is visible on the right glenoid, patella, and acetabulum as well as on most bones of the foot. The one observable tooth is carious.

Femur length is 45.9 cm, suggesting a living stature of about 170.8 cm (5 ft 7.2 in).

BURIAL 464.—FN: Associated artifacts found were a coffin outline, plain and ornamental nails, copper rickrack, wood fragments, four escutcheons, and an apparent bead and fabric lining from the coffin. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 465.—FN: Nails and a pair of leather shoes (only the soles, heels, and buckles were present) were the only associated artifacts.

The extremely fragmentary cranial remains are of a child. Bones present are the temporals (2) and mandible (2).

Deciduous teeth present, in occlusion, are the molars, maxillary left canine, and mandibular left central incisor.

Permanent teeth present, not in occlusion, are the first molars, canines, and incisors.

Cariou lesions are on the occlusal surfaces of the four first molars (maxillary left molar has two lesions).

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of about 3.6 years

A slight tuberculum dentale was on the right maxillary permanent central incisor, and slight shoveling was on most permanent maxillary incisors.

BURIAL 466.—FN: This grave was empty. No artifacts, coffin, or human remains were present.

BURIAL 467.—FN: The only associated artifacts found were a coffin outline and plain and ornamental nails. The coffin was sized for an older infant.

Nonhuman rib fragments are present.

BURIAL 468.—FN: Nails and coffin wood were the only associated artifacts.

The extremely fragmentary right temporal (2) is from a child.

Deciduous teeth present, in occlusion, are the maxillary molars, maxillary right canine, and mandibular right canine.

Permanent teeth present, not in occlusion, from the maxillae are the right first molar, right lateral incisor, and central incisors, and from the mandible the first molars, canines, lateral incisors, and left central incisor.

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of about 3 years.

The maxillary lateral incisor is moderately shovel-shaped.

BURIAL 469.—FN: A coffin outline, wood, and nails were the only associated artifacts. The coffin was sized for an older infant or small child.

No human remains were recovered.

BURIAL 470.—FN: A coffin outline with rickrack at its perimeter, plain and decorative nails, wood fragments, cloth fragments, and straight pins were found in association with this burial. Beynon (1989:116) suggested that the child might have been buried in a shroud.

The fragmentary cranial remains are of a child. Bones present are the frontal (2), occipital (3), right temporal (1), both maxillae (2), right palatine (1), and mandible (3).

Deciduous teeth present in occlusion are the first molars and incisors. Those not in occlusion are all remaining teeth except the mandibular right canine.

Permanent teeth present, not in occlusion, are the first molars, mandibular left canine, mandibular right lateral incisor, and mandibular central incisors.

Carious lesions are in the deciduous maxillary dentition on the interproximal surfaces of the left incisors and right central incisor.

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of about 1.3 years.

A moderately large Carabelli's cusp was visible on the forming maxillary first molar.

BURIAL 471.—FN: A coffin outline, wood fragments, and plain and decorative nails were found in association with this burial. The wood fragments were mostly along the perimeter of the coffin. No other artifacts were present.

The fragmentary remains are of a child. Bones present are the frontal (1), both parietals (2), occipital (1), left (1) and right (2) temporals, both maxillae (1), both palatines (1), mandible (1), and vertebrae fragments.

Deciduous teeth present, in occlusion, are the molars and maxillary right central incisor.

Permanent teeth present, not in occlusion, are the first two molars, right first premolars, canines, central incisors, maxillary lateral incisors, mandibular right second premolar, and mandibular right lateral incisor.

All nine observable deciduous teeth are carious. Occlusal surface lesions are on the mandibular first molars. Interproximal lesions are on all nine of the teeth, with two lesions on the maxillary first molars.

Enamel defects in the permanent dentition consist of horizontal rows of pits in maxillary teeth on the left (6.0 mm) and right (6.3 mm) canines, right lateral incisor (8.0 mm), left (5.7 mm) and right (5.6 mm) central incisors, and in mandibular teeth on the right first molar (two defects, 4.4 mm, 6.8 mm), right canine (5.5 mm), right lateral incisor (n/a), and left (5.9 mm) and right (6.0 mm) central incisors, and of linear horizontal grooves on the maxillary right first molar (3.5 mm).

The lesions on the maxillary central incisors are more severe than those in other teeth; enamel on the entire occlusal half of the crown is much thinner than that on the cervical half (root end), with a clear line of demarcation (Figure 72).

The deciduous teeth seem to be free of defects except for what appears to be a greater than average amount of crenulation on the occlusal surfaces of the second molars. The extent of the hypoplastic defects suggests that this child suffered from continual stress from birth until at least 1 year of age.

Preservation of the remains corresponds to weathering stage 3. Black stains are on the remains.

Dental calcification suggests an age at death of about 4.4 years.

BURIAL 472.—FN: Rodents had disturbed the northern end of the burial. Associated artifacts were a coffin outline and nails. The coffin was sized for a young child.

No human remains were recovered.

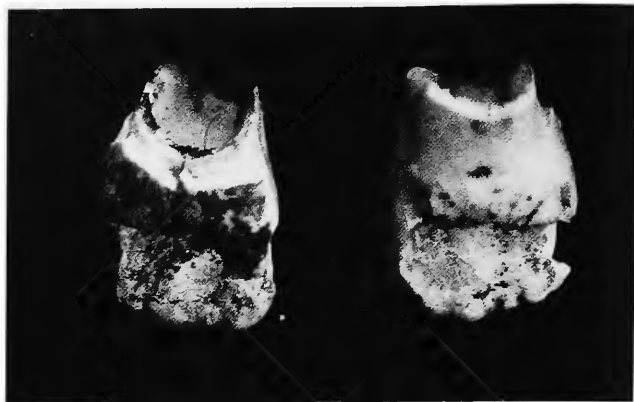


FIGURE 72.—Hypoplastic lesions of maxillary central incisors, burial 471.

BURIAL 473.—FN: Plain and ornamental nails, wood fragments, and a pair of shoes were found in association with this burial. One nail had wood and fabric adhering to it.

Present are the following deciduous teeth, not in occlusion, of a child: the maxillary second molars, maxillary right first molar, maxillary right lateral incisor, mandibular right first molar, and mandibular canines. Also present is a copper-stained hook-and-eye closure with adherent wood or desiccated soft tissue.

Dental calcification and lack of dental wear suggest an age at death of 0.7 to 1.2 years.

BURIAL 474.—FN: Recovered in association with this burial were wood fragments, which constituted portions of the coffin walls and floor, and ornamental nails. The size of the coffin suggests the burial was of an infant.

No human remains were recovered.

BURIAL 475.—FN: A coffin outline and nails were in association with this burial. Associated with the coffin were possible paint fragments. No other artifacts were present.

The poorly preserved remains are of an adult, probably female. Bones present are the frontal (3); left (3) and right (2) parietals; occipital (2); left (1) and right (2) temporals; mandible (2); proximal epiphysis (3) and diaphysis (2) of the left humerus; epiphyses (2) and proximal (2), middle (2), and distal (1) thirds of the right humerus; middle third (2) of the left radius; middle (2) and distal (3) thirds of the right radius; proximal (2), middle (1), and distal (2) thirds of the left ulna; proximal third (2) of the right ulna; both femora (2); proximal (3), middle (2), and distal (3) thirds of the tibiae; distal third (3) and distal epiphysis (1) of the left fibula; proximal (2), middle (1), and distal (2) thirds and distal epiphysis (2) of the right fibula; both calcanei; both tali; right cuboid; and five metatarsals, side and digits unknown.

The permanent mandibular left canine through the left third molar were lost antemortem.

Preservation of the remains corresponds to weathering stage 4.

Cranial suture closure and dental loss suggest an age at death of 35 to 50 years. The relative fragility of the bones suggests female sex.

Slight lipping is visible on the posterior surface of the head of the right femur and on the articular surface of the left calcaneus.

BURIAL 476.—FN: A coffin outline, nails, tacks, and wood fragments were in association with this burial, and an unidentified rectangular metal plate and copper straight pin were recovered from the cranial region.

The very poorly preserved deciduous mandibular first molars and right canine, not in occlusion, and right temporal (2) fragment are from a child.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the remains.

Dental calcification and lack of dental attrition suggest an age at death 0.5 to 1.3 years.

BURIAL 477.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present. The coffin was sized for a young child.

No human remains were recovered.

BURIAL 478.—FN: Artifacts found in association with this burial were a coffin outline, wood fragments, plain and decorative nails, and escutcheons. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 479.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. The size of the coffin suggests the burial was of a small infant.

No human remains were recovered.

BURIAL 480.—FN: A coffin outline with wood fragments mostly at its perimeter and plain and ornamental nails were found in association with this burial. Sections of fabric were recovered from the coffin's perimeter and southern end.

Present are the following deciduous teeth, not in occlusion, of a child: the maxillary second molars, maxillary right canine, mandibular second molars, and mandibular right first molar.

The lack of wear on the teeth suggests an age at death of 0.8 to 1.5 years.

BURIAL 481.—FN: Artifacts found in association with this burial were a coffin outline, nails, tacks, wood fragments, white-topped nails, and fragments of fabric. The size of the coffin suggests the burial was of a young child.

No human remains were recovered.

BURIAL 482.—FN: Plain and ornamental nails were the only artifacts associated with this burial. The size of the coffin suggests the burial was of an infant.

No human remains were recovered.

BURIAL 483.—FN: A coffin outline and nails were in association with this burial, and a straight pin, possibly a diaper fastening (Beynon, 1989:117), was recovered from the innominate region. No other artifacts were present.

The moderately well-preserved remains are of an infant. Present are the bones of the cranial vault (1); both zygomatics (1); mandible (1); left (1) and right (2) clavicles; both scapulae (1); bones of the pelvis (1); six cervical vertebrae; 12 thoracic vertebrae; five lumbar vertebrae; left first rib; six left and eight right other ribs; diaphysis of the humeri; proximal (2), middle (1), and distal (2) thirds of the left radius; proximal (1), middle (1), and distal (2) thirds of the right radius; proximal (1), middle (1), and distal (2) thirds of the ulnae; distal third (2) and remainder (1) of the diaphysis of the left femur; diaphysis (1) of the

right femur; proximal (2) third and remainder (1) of the diaphysis of the left tibia; diaphysis (1) of the right tibia; distal third (2) and remainder of the diaphysis (1) of the left fibula; right fibula (1); four metacarpals, side and digits undermined; six proximal hand phalanges; left talus; both first metatarsals; and eight other metatarsals, side and digits undetermined.

All deciduous teeth are present, not in occlusion, except the maxillary canines and mandibular right central incisor.

Preservation of the remains corresponds to weathering stage 2.

Dental calcification and skeletal measurements suggest an age at death of 1 to 3 months.

The left clavicle appears to have been fractured at the midshaft and was healing at the time of death (Figure 73). The clavicle is flattened on the extreme lateral end. Radiographs suggest a fracture occurred about 21 mm from the lateral end, with disruption of the cortex and reactive bone on the diaphysis (Figure 74). The fracture may have been sustained at birth.

BURIAL 484.—FN: Decorative and plain nails were the only associated artifacts found.

Human remains are the very poorly preserved cranial and cervical vertebrae fragments, both temporals (2), and deciduous maxillary canines, maxillary right lateral incisor, and mandibular left second molar, in occlusion, of a child.

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of 1.3 years.

BURIAL 485.—FN: This burial was empty. No coffin, artifacts, or human remains were present.

BURIAL 486.—FN: This burial was above burial 714. Artifacts in association with the burial were plain and ornamental nails, tacks, coffin-floor remnants, an unidentified yellow woven or knitted material recovered from the apparent foot of the coffin, and pins found near the teeth.

Present are both temporals (2) and the following deciduous maxillary teeth, in occlusion, of a child: first molars, left lateral incisor, and central incisors.

Preservation of the remains corresponds to weathering stage 4.

Dental calcifications and dental wear patterns suggest an age at death of 1.5 to 2 years.

BURIAL 487.—FN: The only artifacts in association with this burial were nails, pins, wood fragments, fabric fragments, and a small copper-alloy straight pin, 21 mm long, recovered near the left temporal, directly above the auditory meatus.

The poorly preserved remains are of an infant. Bones present are the occipital (2); both temporals (2); mandible (3); right scapula (2); first cervical vertebra; two right ribs; and proximal (1), middle (1), and distal (2) thirds of the right humerus.

Deciduous maxillary teeth, not in occlusion, are the right molars and right central incisor.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental calcification and long-bone size suggest a fetal age at death of about 8.5 to 9 lunar months.

BURIAL 488.—FN: Artifacts found in association with this burial were a large portion of the wooden coffin floor and wooden sections of its walls and lid, nails, brass-headed nails, brass handles, decorative screws, escutcheons, a pair of blue



FIGURE 73.—Healing fracture of the left clavicle, burial 483.



FIGURE 74.—Radiograph of the healing fracture of the left clavicle, burial 483.

leather shoes, and glass buttons recovered from the apparent torso region. The coffin was sized for a young child.

No human remains were recovered.

BURIAL 489.—FN: A coffin outline and nails were in association with this burial, and a porcelain button was recovered from the right rib region. Evidence of green paint was under the vertebrae.

The well-preserved remains are of a child. Present are the bones of the cranial vault (1); right zygomatic (1); both maxillae (1); mandible (1); left (2) and right (1) clavicles; manubrium (1); sacrum (2); left (2) and right (1) scapulae; both ilia (2); left ischium (1); first two cervical vertebrae; four other cervical vertebrae; nine thoracic vertebrae; five lumbar vertebrae; both first ribs; eight left and 11 right ribs; proximal (1), middle (1), and distal (2) thirds of the left humerus; diaphysis of the right humerus; diaphysis (2) of the left radius; middle third (1) and remainder (2) of the right radius; distal third (1) and remainder (2)

of the left ulna; diaphysis of the right ulna (2); diaphysis (1) of the left femur; proximal (3), middle (1), and distal (1) thirds and distal epiphysis (1) of the right femur; diaphysis (3) of the left tibia; and proximal epiphysis (1) and proximal (2), middle (2), and distal (3) thirds of the right tibia.

All deciduous teeth are present, in occlusion, except the second molars and canines, which are present but are not in occlusion.

Permanent teeth present, not in occlusion, are the maxillary first molars and mandibular right first molar.

Discrete-boundary hypocalcification is on the deciduous maxillary left canine (2.1 mm). Twelve deciduous teeth show evidence of diffuse-boundary hypocalcification: from the maxillae the left (2.7 mm) and right (3.4 mm) first molars, left (2.5 mm) and right (2.5 mm) lateral incisors, and left (1.7 mm) and right (1.6 mm) central incisors, and from the mandible the left first molar (4.3 mm), right canine (4.0 mm), left (1.6 mm) and right

(4.0 mm) lateral incisors, and left (0.6 mm) and right (0.3 mm) central incisors.

Preservation of the remains corresponds to weathering stage 2.

Dental calcification and long-bone lengths suggest an age at death of about 1.5 years.

BURIAL 490.—FN: This burial was empty except for a single nail. There was no coffin or skeletal evidence present.

BURIAL 491.—FN: Nails were the only artifacts within this burial. No coffin or human remains were present. The size of the grave suggests the burial was of an infant.

No human remains were recovered.

BURIAL 492.—FN: Nails and wood staining showing a coffin outline were associated with this burial. No other artifacts were present. The coffin was sized for a newborn.

No human remains were recovered.

BURIAL 493.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. The size of the coffin suggests the burial was of an infant.

BURIAL 494.—FN: A coffin outline, decorative and plain nails, and wood fragments associated with nails were in association with this burial. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 495.—FN: A coffin outline and plain and ornamental nails were in association with this burial. One white porcelain button was recovered from the middle northern coffin area.

Present are both temporals (2) and teeth of a child. All deciduous teeth are present, in occlusion, except the canines (not in occlusion), mandibular left lateral incisor (absent), and mandibular central incisors (absent). Permanent teeth, not in occlusion, are the first molars, mandibular left canine, mandibular lateral incisors, and central incisors.

No carious lesions or hypoplastic defects were visible.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 2 years.

BURIAL 496.—FN: Plain and ornamental nails, escutcheons (attached to certain head and foot nails with fabric still intact), wood fragments, a coin case with two pennies (dated 1852 and 1853, Beynon, 1989:121), and porcelain buttons along the north-south axis of the coffin were found in association with this burial.

Human remains are the left parietal (3) and the left canine and left second molar, not in occlusion, from the deciduous maxillary dentition of an infant probably about 10 months of age.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

BURIAL 497.—FN: Plain and ornamental nails (one with an escutcheon), tacks, wood fragments, and cloth fragments were in association with this burial. Some fragments of cloth were stained green from copper, perhaps from tacks still in place in sections. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 498.—FN: A foundation to the 1911 church addition disturbed the southern portion of this burial. A drainage pipe, a brick, and a button were recorded within the foundation area. Ar-

tifacts of the burial include wood fragments, nails, and a brass button. Evidence of red paint and a coffin outline were also present.

The incomplete remains are of an adult. Bones present are the frontal (3), both parietals (2), occipital (3), both temporals (2), right zygomatic (2), right maxilla, right scapula (3), first cervical vertebra, distal epiphysis (2) and remainder (1) of the left ulna, and two metacarpals, side and digit undetermined.

Permanent teeth present, in occlusion, from the maxillae are the right third molar, second molars, right first molar, premolars, right canine, lateral incisors, and left central incisor, and from the mandible the right incisors.

One carious lesion is on the occlusal surface of the maxillary left third molar.

Preservation of the remains corresponds to weathering stage 3. What appeared to be a mass of brown hair proved to be root matter under microscopic examination.

Dental wear, cranial suture closure, and the degree of arthritic change suggest an age at death of 27 to 40 years. The robusticity of the ulna, size of the scapula glenoid, and weight of the bones suggests male sex.

Maximum length of the ulna is 27.6 cm, suggesting a living stature of about 176.2 cm (5 ft 9.4 in).

Porous bone is visible on the superior internal surface of the petrous portions of both temporals but is more pronounced on the right side. The lack of reactive bone in this area suggests that this is taphonomic change and is not pathological.

BURIAL 499.—FN: Nails were the only associated artifacts. The size of the coffin outline suggests the burial was of an infant.

No human remains were recovered.

BURIAL 500.—Beynon (1989:122) noted the presence of ornamental nails, rickrack, and blue paint. Fabric and leather shoes were also found. There are no field notes for this burial.

No human remains were recovered.

BURIAL 501.—FN: A coffin outline, plain and ornamental nails, and wood fragments were in association with this burial. Rickrack was recovered from the bottom edge of the coffin. Other artifacts found were white porcelain buttons and cloth-covered metal buttons found along the vertebrae, a small metal pin, a pair of well-preserved leather shoes and fragments of the coffin's fabric lining found at the southern end of the burial, and fabric with an apparent checkered pattern recovered from the leg region. Some of this patterned fabric was beneath wood along the western coffin edge. Seeds were also recovered.

The right parietal (2), occipital (1), and left (1) and right (2) temporals of a child are present.

Deciduous teeth present in occlusion are the maxillary left first molar and maxillary left central incisor. Those not in occlusion are the second molars, maxillary canines, mandibular left first molars, and mandibular left canine.

Permanent teeth present, not in occlusion, are the first molars, maxillary central incisors, mandibular canines, and mandibular left central incisor.

Preservation of the remains corresponds to weathering stage 3.

Dental calcification suggests an age at death of 1.5 to 1.8 months.

Four small extra cusps were visible on the mesio-buccal cusp of the first maxillary molars.

BURIAL 502.—FN: This burial was on top of and disturbed or cut through burials 520 and 508. A coffin outline and nails were associated with it.

The poorly preserved cranium fragments, right temporal (3), and teeth are of an infant. Deciduous teeth, not in occlusion, are the mandibular right second molar and mandibular first molars.

Preservation of the remains corresponds to weathering stage 4.

Dental development suggests an age at death of 0.8 to 1.3 years.

BURIAL 503.—FN: Only nails and wood were in association with this burial. The size of the coffin stain suggests the burial was of a child aged 5 to 6 years.

No human remains were recovered.

BURIAL 504.—FN: Artifacts found in association with this burial were a coffin outline, wood fragments, plain and decorative nails, white metal nails, and white metallic trim along the coffin sides. The metallic trim (possibly lead) was attached with tacks to the outside of the coffin in three bands: two around the top and one around the bottom of the coffin.

A bone fragment, possibly nonhuman, and the following deciduous teeth of a child are present: in occlusion, the maxillary right first molar, maxillary right lateral incisor, mandibular first molars, and mandibular left lateral incisor, and not in occlusion, the maxillary left first molar, maxillary right canine, mandibular second molars, and mandibular canines.

Preservation of the remains corresponds to weathering stage 5.

Dental development suggests an age at death of 1 to 1.5 years.

BURIAL 505.—FN: Only a coffin outline and nails were in association with this burial.

The fragmentary remains are of an infant. Bones present are the occipital (2), both temporals (2), and vertebrae fragments.

Deciduous teeth present, not in occlusion, are the molars, maxillary central incisors, and mandibular lateral incisors.

Preservation of the remains corresponds to weathering stage 3.

Dental calcification suggests an age at death of about 9 months.

BURIAL 506.—FN: This burial was above burial 536 and collapsed into it, mixing both skeletal remains and artifacts (Figures 75, 76). A coffin outline, tacks, nails, and wood fragments were present in burial 506. This burial also had evidence of white paint on the inside of the coffin and pink paint on the outside. Two apparent safety pins were in the chest area, but the excavator was unable to determine which burial they were associated with. One copper hook from a hook and eye was found along the west wall of burial 506, and five other copper hooks were behind the cervical region. The safety pins and hooks both were associated with copper-stained fabric.

The moderately well-preserved remains are of a child. Bones present are the frontal (1), both parietals (1), occipital (1), left (1) and right (2) temporals, both maxillae (1), right palatine (1), mandible (2), first two cervical vertebrae, three other cervical



FIGURE 75.—Spatial relationship of burials 506 and 536.

vertebrae, eight thoracic vertebrae, left first rib, and five left other ribs.

Deciduous teeth present in occlusion are the first molars, maxillary right lateral incisor, and mandibular incisors. Those not in occlusion are the second molars and canines.

Permanent teeth present, not in occlusion, are the first molars, central incisors, mandibular lateral incisors, and mandibular canines. None of the four erupted teeth appeared carious, and none of the deciduous teeth showed hypoplastic defects.

Preservation of the remains corresponds to weathering stage 3. Copper staining is visible on the dorsal arches of the vertebrae.

Dental calcification suggests an age at death of 1.2 to 1.8 years.

BURIAL 507.—FN: Coffin nails, wood fragments, and a 21 × 70 mm fragment of rust-stained wood, possibly with a nail inside, were the only associated artifacts.



FIGURE 76.—Close-up view of burials 506 and 536.

The poorly preserved remains are of an adult male. Bones present are the frontal (2); left (1) and right (2) parietals; occipital (1); left (2) and right (1) temporals; left (2) and right (3) zygomatics; both maxillae (1); both palatines (1); mandible (1); both clavicles (2); both scapulae (3); both ilia (2); both patellae (2); first two cervical vertebrae; three other cervical vertebrae; one thoracic vertebra; rib fragments; proximal epiphysis (2) and remainder (1) of the left humerus; distal third (3) and remainder (2) of the right humerus; proximal epiphysis (2) and diaphysis (1) of the left radius; proximal epiphysis (2) of the right radius; middle thirds (3), proximal epiphyses (2), and proximal thirds (2) of the ulnae; epiphyses (2) and diaphysis (1) of the left femur; right femur (2); proximal epiphyses (2), distal epiphyses (3), distal thirds (2), and remainder (1) of the tibiae; distal epiphysis of the right fibula (3); both calcanei; both tali; and two metatarsals, side and digit undetermined.

Permanent teeth present, in occlusion, are all the maxillary teeth except the left first molar and left second premolar, which were lost antemortem, and from the mandible the third molars,

right second molar, left first molar, and left premolars. Mandibular teeth lost antemortem were the left second molar, first molar, and right second premolar.

Carious lesions are on the occlusal surfaces of the maxillary left third molar and maxillary left (two lesions) and right second molars and on the interproximal surfaces of the mandibular right second molar and mandibular left premolars. An alveolar abscess is associated with the mandibular right first premolar.

Preservation of the remains corresponds to weathering stage 4.

Cranial suture closure, dental wear, and lack of arthritic change suggest an age at death of 25 to 30 years. Skeletal morphology suggests probable male sex.

Measurement of the femur suggests a living stature of about 174.5 cm (5 ft 8.7 in).

Moderate to heavy calculus is on most of the posterior dentition, on both the lingual and buccal surfaces. Tubercula dentale were visible on the maxillary lateral incisors. No pathological conditions were noted.

BURIAL 508.—FN: This burial was beneath burial 520 but burials 520 and 502 both had disturbed it. The only remains present were nails and sections of a carbonized wall. The size of the coffin outline suggests the burial was of an infant.

No human remains were recovered.

BURIAL 509.—FN: Nails were the only associated artifacts.

The poorly preserved remains are of an infant. Bones present are the occipital (2), both temporals (2), right scapula (2), eight left and six right ribs, and diaphysis (2) of the right humerus.

No teeth were present.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

Measurements of the basilar, scapula, and humerus suggest that the infant was a newborn (9 lunar months).

BURIAL 510.—FN: A coffin outline, plain and ornamental nails, and tacks were in association with this burial. Twisted metal objects recovered from the floor of the coffin are believed to be nails, and a porcelain button was also found.

The very fragmentary cranial remains are of a child. Bones present are the frontal (3), both temporals (3), and mandible (3).

Deciduous teeth present in occlusion are the molars, canines, and mandibular lateral incisors. Those not in occlusion are the maxillary central incisors.

Permanent teeth present, not in occlusion, are the first molars, canines, incisors, and maxillary left first premolar.

Carious lesions in the deciduous dentition are on the occlusal surfaces of the maxillary second molars and interproximal surface of the maxillary right central incisor.

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of about 3 years.

BURIAL 511.—FN: A coffin outline, twisted-wire nails, and plain and decorative nails were associated with this burial. No other artifacts were present.

The poorly preserved remains are of a child. Bones present are the occipital (2), both temporals (2), mandible (2), and vertebrae fragments.

Deciduous teeth present, in occlusion, are the molars, maxillary left central incisor, and mandibular left lateral incisor.

Permanent teeth present, not in occlusion, are the first molars, canines, maxillary left central incisor, and mandibular incisors.

Preservation of the remains corresponds to weathering stage 4.

Dental calcification suggests an age at death of about 2.9 years.

The mandibular symphysis was only beginning to fuse. None of the deciduous teeth appear to be carious or to show hypoplastic defects. The permanent mandibular first molars have small to medium-sized cusp 7s on their lingual surfaces.

BURIAL 512.—FN: A coffin outline, wood encompassing the area of the coffin, plain and ornamental nails, a fabric fragment, porcelain buttons, and a section of rickrack were associated with this burial.

Three cervical vertebrae, cranium fragments, and the following deciduous teeth of a child are present: in occlusion, the first molars, right canines, and maxillary right central incisor; not in occlusion, the maxillary second molars and mandibular right second molar.

Preservation of the remains corresponds to weathering stage 4.

The stages of dental development and wear suggest an age at death of 1.5 to two years.

BURIAL 513.—FN: In association with this burial were a coffin outline, nails, wood fragments, an eye patch over the right orbit with an apparent copper penny in the orbit, apparent fabric, and a copper penny in the area of the left parietal and frontal. One of the pennies is dated 1844 (Beynon, 1989:131). Evidence of red paint was in the grave.

The remains are of an adult male. The postcranial remains are fragmentary, but the cranium is in fair condition. Bones present are the frontal (1); both parietals (2); occipital (2); left (1) and right (2) temporals; both zygomatics (2); both maxillae (2); both palatines (1); mandible (2); left clavicle (2); sacrum (3); left scapula (3); left (2) and right (3) ilia; first cervical vertebra; second cervical vertebra; three other cervical vertebrae; three left ribs; proximal epiphysis (2) and proximal (2) and middle (3) thirds of the left humerus; distal epiphysis (2) and remainder (3) of the right humerus; middle thirds (2) of the radii; middle third (2) of the left ulna; proximal epiphysis (3) and proximal (3) and middle (3) thirds of the right ulna; distal third (3) and remainder (2) of the left femur; right femur (2); proximal epiphysis (3) and proximal (3) and distal (3) thirds and distal epiphysis (2) of the left tibia; right tibia (2); distal epiphyses (2) of the fibulae; left lunette; left first metacarpal; one other metacarpal, side and digit undetermined; one proximal hand phalanx; both calcanei; both tali; both cuboids; both third cuneiforms; both foot naviculars; left third, fourth, and fifth metatarsals; one left and one right metatarsal, digit undetermined; and three proximal foot phalanges.

Permanent teeth present, in occlusion, are the maxillary left first premolar and maxillary right incisors (damaged), and from the mandible the right second and third molars (damaged), right first premolar, canines, lateral incisors, and central incisors (damaged). Permanent teeth lost antemortem were the second premolars, maxillary molars, maxillary right first premolar, and mandibular first molars.

Carious lesions are in the mandibular teeth on the interproximal surfaces of the right first premolar, right canine, right lateral incisor (two lesions), and right central incisor, and large surfaces of the right second and third molars. Alveolar abscesses are associated with the maxillary left canine, mandibular right second molar, mandibular left incisors, and mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 5.

The extent of degenerative change suggests an age at death of 50 to 85 years.

Green copper staining in the right eye orbit is probably from the copper plate (thought by excavators to be a penny) found in the eye socket. A preserved optic nerve and a leather patch over the eye were recorded in the field notes but neither object was found with the skeletal remains in the Smithsonian analysis. The copper preserved some desiccated soft tissue and adherent hair above the eye, on the right maxilla, left nasal cavity (including some hair that may be part of a moustache), and right temporal. The hair on the temporal is light brown and about 24 mm long. A piece of wood had adhered to the right zygomatic.

Pathological conditions include a cervical vertebra with a porous centrum and moderately severely lipping on the anterior surface and moderate arthritic lipping on the bones of the hands and feet. The left side of the nasal aperture is 2 mm lower than the right. Dentin exposure due to attrition is marked, but the teeth are not much reduced in height.

BURIAL 514.—FN: Coffin nails and wood fragments were the only associated artifacts.

The fragmentary cranial remains are both temporals (2) and teeth of a child probably 6 months to 1 year of age. Deciduous teeth present, not in occlusion, are the maxillary left first molar, maxillary canine, maxillary right lateral incisor, mandibular left molars, and mandibular left canine.

Preservation of the remains corresponds to weathering stage 4.

BURIAL 515.—FN: Rickrack along the eastern wall, a coffin outline, plain and decorative nails, and wood fragments were in association with this burial.

Human remains are the petrous portion of the right temporal (2) of an infant. Its preservation corresponds to weathering stage 3, and it is slightly black stained.

BURIAL 516.—FN: A metal coffin frame and wood fragments were found in association with this burial. A thin, flat 0.5 cm wide strip of copper was at the perimeter of the coffin between two layers of wood. Plain nails, decorative nails, and escutcheons were also recovered.

A cranial fragment and two deciduous maxillary teeth, the right first molar and right central incisor, not in occlusion, of an infant about 6 months of age are present.

Preservation of the remains corresponds to weathering stage 3.

BURIAL 517.—FN: A coffin outline, plain nails, ornamental nails with escutcheons, fabric fragments, porcelain buttons, two hooks from a hook-and-eye fastener, straight pins, and the remains of a pair of leather shoes were in association with this burial. A section of the wooden coffin floor with fabric still attached was also recovered.

The fragmentary cranial remains are of a child. Bones present are the occipital (2), both temporals (2), both maxillae (1), and mandible (2).

Deciduous teeth present, in occlusion, are the molars, maxillary left central incisor, and mandibular left lateral incisor.

Permanent teeth present in occlusion are the first molars. Those not in occlusion from the maxillae are the second molars, premolars, and left central incisor, and from the mandible the right second molar, first premolars, canines, and incisors.

Carious lesions in the deciduous dentition are on the occlusal surfaces of the maxillary left (three lesions) and right second molars and mandibular right second molar (two lesions) and the interproximal surfaces of the maxillary right second molar, maxillary right first molar (two lesions), maxillary left central incisor (two lesions), mandibular second molars, mandibular left and right (two lesions) first molars, and mandibular left central incisor.

Preservation of the remains corresponds to weathering stage 4. Dental calcification suggests an age at death of 5 years.

BURIAL 518.—FN: The southern portion of this grave had been disturbed by a backhoe. A coffin outline and fabric fragments were associated with the burial. Among the associated artifacts recovered were plain and decorative nails. Decorative nails driven into the fabric-covered wood of the coffin had escutcheons; some of the fabric and wood behind the escutcheons was still intact. White porcelain buttons were recovered from the vertebral region, and a section of rickrack was recovered along the eastern edge of the coffin. A copper barrette in the cranial region was recovered with hair still attached.

The fragmentary remains are of a child. Bones present are the frontal (3), occipital (2), both temporals (2), left (2) and right (3)

maxillae, left palatine (1), mandible (2), scapulae (3), left ilium (2), and six cervical vertebrae.

All deciduous teeth are present, in occlusion, except the maxillary incisors.

Permanent teeth present, not in occlusion, from the maxillae are the first molars, right second premolar, first premolars, canines, and incisors, and from the mandible the left first and second molars.

Carious lesions in the deciduous dentition are on the occlusal surfaces of the maxillary right molars and all mandibular molars (Figure 77); interproximal surfaces of the maxillary right first molar and maxillary right canine, and the following mandibular teeth: left first molar, left canine, right lateral incisor, and central incisors; and large surfaces of the maxillary left first molar and maxillary left central incisor. An alveolar abscess is associated with the deciduous mandibular right first molar, exposing the entire root on the buccal surface (Figure 78).

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of 3.6 to 4.7 years. The barrette with attached hair found in the grave suggests female sex.

BURIAL 519.—FN: A coffin outline, nails, and one white porcelain button were associated with this burial. No other artifacts were present.

The moderately well-preserved remains are of a child. Present are the bones of the cranial vault (2); left (2) and right (1) zygomatics; both maxillae (1); both palatines (1); mandible (1); both clavicles (2); sacrum (2); left (1) and right (2) scapulae; both ilia (2); second cervical vertebra; five other cervical vertebrae; 11 thoracic vertebrae; five lumbar vertebrae; both first ribs; nine left and nine right other ribs; proximal epiphysis (3), proximal third (3), and remainder (2) of the left humerus; proximal epiphysis



FIGURE 77.—Occlusal surface carious lesion on mandibular molars, burial 518.



FIGURE 78.—Alveolar abscess associated with deciduous mandibular right first molar, burial 518.

(3), proximal (2) and middle (3) thirds, and remainder (2) of the right humerus; proximal epiphysis (2) and diaphysis (3) of the left radius; proximal epiphysis (2), proximal (3) and distal (3) thirds, and distal epiphysis (3) of the right radius; proximal epiphysis (2) and proximal (2) and middle (3) thirds of the left ulna; proximal epiphysis (2), proximal third (3), and distal epiphysis (3) of the right ulna; epiphyses (2) and diaphysis (1) of the left femur; proximal third (1) and remainder of the right femur; left tibia (2); diaphysis (2) of the right tibia; diaphysis (1) of the left fibula; and proximal (3), middle (2), and distal (3) thirds of the right fibula.

All deciduous teeth are present, in occlusion, except the maxillary left lateral incisor.

Permanent teeth present, not in occlusion, are the first and second molars.

Caries lesions in the deciduous dentition are on the occlusal surfaces of the maxillary second molars and mandibular right first molar and the interproximal surfaces of, from the maxillae, the left second molar, left (two lesions) and right (two lesions) first molars, and left canine, and from the mandible, the left first molar (two lesions) and canines.

Seventeen deciduous teeth display brown hypocalcifications. Discrete-boundary hypocalcifications are in mandibular teeth on the left (1.8 mm) and right (1.5 mm) second molars, left first molar (2.3 mm), and left canine (2.7 mm). Diffuse-boundary hypocalcifications are in maxillary teeth on the left (1.6 mm) and right (1.6 mm) second molars, left (1.9 mm) and right (1.8 mm) first molars, left (2.1 mm) and right (3.5 mm) canines, right lateral incisor (2.0 mm), and left (1.6 mm) and right (1.2 mm) central in-

cisors, and in mandibular teeth on the right first molar (1.6 mm), right canine (1.2 mm), and left (1.9 mm) and right (2.5 mm) central incisors.

Preservation of the remains corresponds to weathering stage 3. Black stains are on the mandible and cranial bones.

Dental calcification suggests an age at death of 4.5 to 5 years.

The permanent first molars appear to have several extra cusps (4) on their medial surfaces, and the mandibular first molars appear to have extra cusps on the lingual and distal surfaces. These molars, however, do not have the so-called mulberry shape.

BURIAL 520.—FN: This burial was between burials 508 and 502. Burial 502 cut into it, and the only artifacts present were two nails.

No human remains were recovered.

BURIAL 521.—There are no field notes available for this burial; no human remains were recovered.

BURIAL 522.—FN: A coffin outline, nails, tacks, coffin wood fragments, and fragments of fabric were found in association with this burial. The tacks recovered still had wood and fabric adhering to them. No other artifacts were present. The coffin size suggests the burial was of an infant or young child.

No human remains were recovered.

BURIAL 523.—FN: Coffin nails and wood were the only associated artifacts.

The poorly preserved remains are of a child. Bones present are the frontal (2); both temporals (3); both zygomatics (3); left maxilla (2); left palatine (3); mandible (3); other cranium fragments; and fragments of the pelvis, vertebrae, and long bones.

Deciduous teeth present, in occlusion, are the molars, maxillary canines, maxillary right central incisor, and mandibular left canine.

Permanent teeth present, not in occlusion, from the maxillae are the first molars, left canine, right lateral incisor, and central incisors, and from the mandible the right first molar, left first premolar, canines, and lateral incisors.

Carious lesions in the deciduous dentition are on the occlusal surface of the mandibular left first molar; interproximal surfaces of the maxillary left second molar, maxillary first molars, maxillary right central incisor (two lesions), and mandibular right first molar; and smooth surface of the maxillary right central incisor.

Preservation of the remains corresponds to weathering stage 4. Dental formation suggests an age at death of 3 to 3.5 years.

The first permanent molar is unusually crenelated.

BURIAL 524.—FN: Coffin wood, nails, and tacks were in association with this burial.

The poorly preserved cranium fragments and teeth are of an infant. Deciduous teeth present, not in occlusion, are the molars, maxillary left canine, maxillary right lateral incisor, maxillary central incisors, and mandibular left canine. The permanent maxillary right first molar, not in occlusion, is also present.

Preservation of the remains corresponds to weathering stage 4.

Dental formation suggests an age at death of about 9 months.

BURIAL 525.—FN: This burial was directly above burial 526. Nails were in association with this burial, and two sherds of an unidentified blue and white ceramic were recovered on the eastern side of the grave in the grave fill and in the coffin.

No human remains were recovered, but the size of the grave suggests the burial was of a small child.

BURIAL 526.—FN: Nails, wood fragments (along the edges and floor), and hooks (from hook and eyes) were in association with this burial. No other artifacts were recovered.

The poorly preserved cranium fragments and teeth are of a child. Deciduous maxillary teeth present, in occlusion, are the right molars and right lateral incisor. The permanent maxillary right first molar is present but is not in occlusion.

Preservation of the remains corresponds to weathering stage 4.

Dental development suggests an age at death of about 1.6 years.

BURIAL 527.—FN: A partial coffin outline and nails were in association with this burial. No other artifacts were present.

The poorly preserved vertebrae fragments are from an infant. Their preservation corresponds to weathering stage 4.

BURIAL 528.—FN: A coffin outline, nails, ornamental screws, and escutcheons were associated with this burial. No other artifacts were recovered. The coffin size suggests the burial was of a 4- to 5-year-old child.

No human remains were recovered.

BURIAL 529a.—FN: Only a coffin outline and nails were in association with this burial.

The incomplete remains are of an adult female. Present are the bones of the cranial vault (2); mandible (2); both clavicles (2); left scapula (3); left (2) and right (3) ilia; left ischium (2); left patella (2); first two cervical vertebrae; eight thoracic vertebrae;

four lumbar vertebrae; left rib; nine left and four right other ribs; distal third (1) and remainder (2) of the left humerus; proximal (3), middle (2), and distal (2) thirds and distal epiphysis (3) of the right humerus; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds of the left radius; proximal (2), middle (2), and distal (3) thirds and distal epiphysis (3) of the right radius; proximal epiphysis (2) and proximal (2), middle (2), and distal (1) thirds and distal epiphysis (1) of the left ulna; proximal epiphysis (2) and proximal (2) and middle (3) thirds of the right ulna; proximal epiphysis (1), proximal third (1), and remainder (2) of the left femur; right femur (2); epiphyses (2), proximal third (1), and remainder (2) of the right tibia; distal epiphyses (2) and proximal (2), middle (1), and distal (1) thirds of the fibulae; both calcanei (2); both tali (2); left second and third cuneiforms; both fifth metatarsals; and another metatarsal, side and digit undetermined.

Permanent teeth present, in occlusion, from the maxillae are the second molars, left first molar, premolars, canines, right lateral incisor, and central incisors, and from the mandible the second molars (right damaged), first molars, premolars, lateral incisors, and canines. Permanent teeth present but not in occlusion are the left third molars.

Carious lesions are on the occlusal surface of the maxillary right first molar; interproximal surfaces of the maxillary right second premolar, maxillary left first premolar (two lesions), mandibular left first molar (two lesions), and mandibular left second premolar; and large surface of the mandibular left second molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on many of the bones.

Dental formation, dental attrition, cranial suture closure, and arthritic changes suggest an age at death of 18 to 25 years. Pelvic and general skeletal morphology suggest female sex.

BURIAL 529b.—The temporal bones (2) and teeth of a child are present. Deciduous teeth in occlusion are the maxillary right lateral incisor and maxillary central incisors. Those not in occlusion are the molars, maxillary right canine, mandibular left canine, mandibular lateral incisors, and mandibular left central incisor. Permanent teeth present, not in occlusion, are the maxillary left central incisor and, from the mandible, the left first molar, right second premolar, right lateral incisor, and central incisors.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 1.3 years.

BURIAL 530.—FN: Plain nails, decorative nails, tacks, fabric, wood fragments, and a copper button found in the cranial region were in association with this burial.

The cranium fragments and deciduous teeth are from a 1-year-old infant. Bones present are the frontal (3), occipital (2), and both temporals (3). Teeth, not in occlusion, are the molars, maxillary right canine, mandibular canines, and mandibular right lateral incisor.

Enamel defects consist of single pits on the mandibular left (2.4 mm) and right (3.8 mm) canines.

Preservation of the remains corresponds to weathering stage 4. Green stains, apparently copper, are on some of the maxillary teeth.

BURIAL 531.—No records of this burial are available.

BURIAL 532.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

The fragmentary skeletal remains are of an infant. Bones present are the occipital (3) and both petrous portions of the temporals (3).

Deciduous teeth present, not in occlusion, are the maxillary right molars, maxillary left canine, mandibular left first molar, and mandibular left canine.

An enamel defect of single pits is on the mandibular left canine (1.6 mm).

Preservation of the remains corresponds to weathering stage 3.

Dental development indicates an age at death of 0.8 to 1.5 years.

BURIAL 533.—FN: Nails and wood fragments were the only associated artifacts. The coffin size suggests the burial was of an older infant or small child.

No human remains were recovered.

BURIAL 534.—FN: The northern portion of this burial had been disturbed by burial 491. A coffin outline and nails were recorded in the undisturbed portion of the burial. No other artifacts were recovered.

The incomplete remains are of a young infant. Bones present are the right palatine (2); both clavicles (2); right ilium (3); vertebrae fragments; six left and four right ribs; and proximal (2), middle (3), and distal (2) thirds of the left humerus.

One deciduous mandibular left first molar is present, not in occlusion.

Preservation of the remains corresponds to weathering stage 4.

Tooth formation suggests an age at death of newborn to 2 months.

BURIAL 535.—FN: A coffin outline, wood fragments, fabric, and plain and ornamental nails were in association with this burial. No other artifacts were recovered. The coffin size suggests the burial was of an older infant or small child.

No human remains were recovered.

BURIAL 536.—FN: Burial 506 collapsed into this burial, making it hard to decipher what artifacts were associated with it. Notes reference a coffin outline, nails, fabric, and white paint chip in association with burial 536. Two safety pins were also recovered, but the excavator was unable to determine if they were from burial 506 or 536.

The well-preserved cranium and poorly preserved postcranial skeletal fragments are from a child. Bones present are the frontal (2), right parietal (2), occipital (3), both temporals (2), both zygomatics (2), left (1) and right (2) maxillae, both palatines, mandible (2), left clavicle (2), sacrum (2), left scapula (3), both ilia (2), four cervical vertebrae, fragments of other vertebrae, one first rib, two other ribs, middle third (2) of the left humerus, proximal third (2) of the right humerus, and proximal (2) and middle (3) thirds of the right femur.

Deciduous teeth present, in occlusion, are the molars and the mandibular canines and incisors.

Permanent teeth present, not in occlusion, are the first molars and, from the mandible, the right second molar, right canine, and central incisors.

One enamel defect, a single pit, is on the deciduous mandibular left canine (1.6 mm).

Preservation of the remains corresponds to weathering stage 3. Several spots of an orange fluorescent paint, which appear to be recent, are visible on the cranium.

Dental development suggests an age at death of 2.9 to 3.9 years.

The only pathological condition noted was bilateral cribra orbitalia, active at the time of death. Dental wear was slight.

BURIAL 537.—FN: This burial had been disturbed by a backhoe, and nails were the only associated artifacts. The size of the grave suggests the burial was of an infant.

No human remains were recovered.

BURIAL 538.—FN: A coffin outline, wood fragments, and nails, some in intact wood, were in association with this burial. No other artifacts were recovered.

The incomplete remains are of a child. Bones present are the occipital (3), both temporals (3), and second cervical vertebra.

Deciduous teeth present in occlusion are the maxillary first molars, maxillary central incisors, and mandibular lateral incisors. Those not in occlusion are the second molars and mandibular right canine.

Permanent teeth present, not in occlusion, are the maxillary molars, mandibular right first molar, and mandibular right incisors.

Preservation of the remains corresponds to weathering stage 3.

The extent of dental formation suggests an age at death of about 1.6 years.

BURIAL 539.—FN: Plain and ornamental nails were the only associated artifacts.

The incomplete remains are of an adult female. Bones present are the frontal (1); left (2) and right (1) parietals; occipital (2); both temporals (2); left (3) and right (2) zygomatics; left (2) and right (1) maxillae; both palatines (1); mandible (2); sacrum (2); both scapulae (3); both ilia (2); left ischium (3); both patellae (2); first two cervical vertebrae; four other cervical vertebrae; three thoracic vertebrae; three lumbar vertebrae; proximal epiphysis (3) and proximal (2), middle (2), and distal (1) thirds and distal epiphysis (1) of the left humerus; proximal epiphysis (3) and proximal (2), middle (2), and distal (1) thirds and distal epiphysis (2) of the right humerus; proximal epiphysis (2), proximal (2) and middle (3) thirds, and distal epiphysis (3) of the left radius; epiphyses (2) and proximal (3) and distal (3) thirds of the right radius; proximal epiphysis (1) and proximal (2) and middle (3) thirds of the left ulna; proximal epiphysis (2) and proximal third (3) of the right ulna; epiphyses (2) and proximal (1), middle (2), and distal (2) thirds of the left femur; proximal epiphysis (3) and proximal (2), middle (1), and distal (2) thirds and distal epiphysis (2) of the right femur; left tibia (2); distal epiphysis (3) and remainder (2) of the right tibia; middle (3) and

distal (2) thirds and distal epiphysis (2) of the left fibula; middle third (3) of the right fibula; both lunates; both hamates; right first metacarpal; right third metacarpal; one left and one right other metacarpals, digit undetermined; three proximal right hand phalanges; four distal right hand phalanges; both calcanei; both tali; left cuboid; left first cuneiform; both third cuneiforms; right foot navicular; left first metatarsal; right second metatarsal; right third metatarsal; three left and two right other metatarsals, digits undetermined; two middle foot phalanges; and one distal foot phalanx.

Permanent teeth present, in occlusion, from the maxillae are the third molars, left first molar (damaged), right second premolar (damaged), left first premolar, right canine (damaged), and left central incisor, and from the mandible the right first premolar, canines, and right incisors. Permanent teeth lost antemortem were the maxillary right first molar, maxillary right first premolar, mandibular molars, mandibular second premolars, and mandibular left first premolar.

Interproximal carious lesions are on the maxillary left third molar, mandibular right first premolar, mandibular canines (two lesions in each tooth), and mandibular right incisors (two lesions in each tooth); cervical area of the maxillary right third molar; and large surfaces of the maxillary left first molar, maxillary right second premolar, and maxillary right canine. An alveolar abscess is in the mandibular right lateral incisor.

Enamel defects consist of linear horizontal grooves on the mandibular right canine (two defects, 1.8 mm, 3.0 mm) and mandibular right lateral incisor (2.7 mm).

Preservation of the remains corresponds to weathering stage 4.

The extent of arthritic change and pelvic morphology suggest an age at death of 30 and 40 years. General skeletal morphology suggests female sex.

BURIAL 540.—FN: Nails and an unidentified coin were associated with this burial. A pipestem was found in the fill around the innominates.

The incomplete remains are of an adult female. Bones present are the frontal (2); left (1) and right (2) parietals; occipital (1); left (2) and right (1) temporals; maxilla fragment; mandible (2); right clavicle (3); both scapulae (3); both ilia (3); left (2) and right (3) patellae; first two cervical vertebrae; three other cervical vertebrae; rib fragments; proximal epiphysis (3) and proximal (3), middle (2), and distal (3) thirds of the left humerus; proximal epiphysis (2) and proximal (2), middle (3), and distal (2) thirds and distal epiphysis (3) of the right humerus; proximal third (3) of the right radius; proximal epiphysis (2) and proximal third (2) of the left ulna; proximal epiphysis (2) and proximal third (3) of the right ulna; epiphyses (2) and proximal (1), middle (1), and distal (2) thirds of the left femur; right femur (2); proximal (2), middle (3), and distal (3) thirds and distal epiphysis (3) of the left tibia; proximal epiphysis (3) and proximal (2), middle (2), and distal (3) thirds and distal epiphysis (2) of the right tibia; distal epiphysis (3) of the left fibula; middle third (3) and distal epiphysis (3) of the right fibula; both calcanei; both tali; right cuboid; left second cuneiform; and left foot navicular.

Permanent teeth present, in occlusion, are the third molars, lateral incisors, maxillary left premolars, and, from the mandible, the right premolars, canines, and right central incisor (damaged). The permanent second molars were lost antemortem.

Carious lesions are on the interproximal surfaces of the maxillary left third molar and maxillary left lateral incisor and the cervical areas of the maxillary right third molar, maxillary left premolars, and mandibular left and right (two lesions) third molars.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the calvarium and mandible.

Cranial suture closure, arthritic change, dental attrition, and dental loss suggest an age at death of 32 to 45 years. General skeletal morphology suggests probable female sex.

BURIAL 541.—FN: A coffin outline, nails, and hair pins recovered from the cranial region were in association with this burial. No other artifacts were recovered.

Bones present are the occipital (3), both temporals (2), and the first cervical vertebra (1) of an infant, probably newborn.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 542.—FN: Nails and wood fragments were associated with this burial, and a small pin was discovered by an excavator screening for cranium fragments. No other artifacts were present.

Human remains are the petrous portions of both temporals (2), other cranium fragments, and teeth. Deciduous teeth present, in occlusion, are the maxillary left second molars and the mandibular molars. Permanent teeth present, not in occlusion, are the second molars, first molars, left second premolars, four first premolars, canines, and incisors.

Preservation of the remains corresponds to weathering stage 5.

Dental formation suggests an age at death of about 5.8 years.

BURIAL 543.—FN: This burial had been disturbed through its midsection (east-west) by a trench for a drainage ditch. Artifacts recovered include plain nails, ornamental nails, and wood fragments. Escutcheons and fabric fragments were found in the southern end of the coffin.

The petrous portions of the temporals (2) and teeth of an infant are present. Deciduous teeth in occlusion are the lateral incisors, maxillary left first molar, maxillary right canine, maxillary left central incisor, mandibular first molars, and mandibular right central incisor. Those not in occlusion are the second molars, maxillary left canine, maxillary right central incisor, and mandibular left canine. Permanent teeth present, not in occlusion, are the first molars, central incisors, and mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 3. Green staining is on some left molars.

The extent of dental formation suggests an age at death of about 1.6 years.

BURIAL 544.—FN: A coffin outline, nails, and three lithic flakes were in association with this burial. One of the lithics might be a section of a projectile point. No other artifacts were recovered. Coffin size suggests the burial was of an older infant or young child.

No human remains were recovered.

BURIAL 545.—FN: A coffin outline, plain and ornamental nails, wood fragments, and a bone button recovered from the lower torso were associated with this burial.

The incomplete remains are of an adult, probably male. Bones present are the frontal (1); left (1) and right (2) parietals; occipital (1); both temporals (1); both zygomatics (1); left (1) and right (2) maxillae; both palatines (1); mandible (1); left (3) and right (1) clavicles; sacrum (2); both scapulae (3); left (2) and right (1) ilia; left (3) and right (2) ischia; left (2) and right (1) pubes; both patellae (1); first two cervical vertebrae; two other cervical vertebrae; eight thoracic vertebrae; one lumbar vertebra; both first ribs; three left and five right other ribs; both humeri (1); proximal epiphysis (2), distal third (3), and remainder (1) of the diaphysis of the left radius; distal epiphysis (2), and remainder (1) of the right radius; proximal epiphysis (1) and proximal (1), middle (2), and distal (3) thirds of the left ulna; right ulna (1); proximal epiphysis (3) and remainder (1) of the left femur; right femur (1); left tibia (1); proximal epiphysis (2) and remainder (1) of the right tibia; left fibula (1); proximal epiphysis (2) and remainder (1) of the right fibula; right second, third, fourth, and fifth metacarpals; one middle hand phalanx; both calcanei; both tali; both cuboids; left first cuneiform; both second and third cuneiforms; right foot navicular; the metatarsals; eight proximal foot phalanges; three middle foot phalanges; and two distal foot phalanges.

All permanent teeth are present, in occlusion.

Preservation of the remains corresponds to weathering stage 1.

Cranial suture closure and arthritic change suggest an age at death of 25 to 32 years. Very robust skeletal morphology suggests probable male sex.

Probable pipewear is on both sides of the dentition. On the right side, semicircular wear facets involve the occlusal and lingual surfaces of the distal aspect of the maxillary lateral incisor and the mesial aspect of the canine (Figure 79). Semicircular wear facets are also present, involving mainly the occlusal surfaces of the distal aspect of the mandibular lateral incisor and the mesial aspect of the canine. With the teeth in occlusion, the resulting circular wear facet is about 7.0 mm in diameter.

On the left side, the facets are less pronounced. The maxillary dentition involves the occlusal and lingual surfaces of the distal aspect of the lateral incisor (semicircular wear facet) and very slight wear on the occlusal and lingual surfaces of the canine (mesial aspect). In the mandibular dentition, facets are on the occlusal surfaces of the distal aspect of the lateral incisor and the mesial aspect of the canine. With the teeth in occlusion, these facets produce a circular opening 6.5 mm in diameter.

The maximum femur length is 43.1 cm, suggesting a living stature of about 164 cm (5 ft 4.6 in).

Slight arthritic lipping is on the distal right radius and proximal right ulna.

BURIAL 546.—FN: A coffin outline, nails, and plaster were the only associated artifacts. The pink, apparent coffin plaster was found along the outline of the coffin in the region of the left femur.

The incomplete remains are of an adult female. Bones present are the frontal (2); left (2) and right (1) parietals; occipital (1);



FIGURE 79.—Pipewear in right dentition, burial 545.

left (2) and right (1) temporals; left (2) and right (1) zygomatics; left (2) and right (1) maxillae; both palatines (1); mandible (1); left clavicle (2); sacrum (2); both scapulae (3); left (3) and right (2) ilia; all cervical vertebrae; five thoracic vertebrae; four left and one right rib; left humerus (2); proximal epiphysis (3) and remainder (2) of the right humerus; middle third (3) of the left radius; proximal epiphysis (1) and proximal (1) and middle (3) thirds of the right radius; proximal epiphysis (2) and proximal (2) and middle (3) thirds of the left ulna; proximal epiphysis (2) and proximal (1) and middle (3) thirds of the right ulna; both femora (2); left tibia (2); epiphyses (2), distal third (1), and remainder of the diaphysis (2) of the right tibia; proximal (3), middle (3), and distal (2) thirds and distal epiphysis (2) of the left fibula; proximal third (3) and remainder of the diaphysis (2) and distal epiphysis (2) of the right fibula.

All permanent teeth are present, in occlusion.

Cariou lesions are on the occlusal surfaces of the maxillary left second molar and mandibular second molars and the interproximal surfaces of the maxillary left second molar, maxillary left first molar, maxillary left second premolar, and mandibular left first molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the cranial vault.

Cranial suture closure and dental attrition suggest an age at death of 18 to 21 years. Pelvic and general skeletal morphology suggest female sex.

Maximum femur length is 44.4 cm, suggesting a living stature of 163.8 cm (5 ft 4.4 in).

An open metopic suture is on the frontal (Figure 80). Healed cribra orbitalia is in both orbits.

A radiograph revealed lines of increased density on the distal right tibia. Measured from the distal metaphysis, their locations are 41 mm, 47 mm, 52 mm, 60 mm, and 82 mm.

BURIAL 547.—FN: A coffin outline with sections of rickrack, plain and decorative nails, and wood and fabric fragments were found in association with this burial.

One deciduous tooth, the maxillary right first molar, is present but is not in occlusion. Its stage of formation suggests an age at death of about 5 months.

BURIAL 548.—FN: A coffin outline, nails, and wood fragments were in association with this burial. No other artifacts were present. Coffin size suggests the burial was of a child 6 to 10 years of age.

No human remains were recovered.

BURIAL 549.—FN: Coffin nails were the only associated artifacts. The grave size suggests the burial was of a child 3 to 5 years of age.

No human remains were recovered.

BURIAL 550.—FN: A coffin outline and nails were the only associated artifacts. Coffin size suggests the burial was of a child 3 to 5 years of age.

No human remains were recovered.

BURIAL 551.—FN: A coffin outline and plain and ornamental nails were the only associated artifacts. The coffin was sized for a young child.

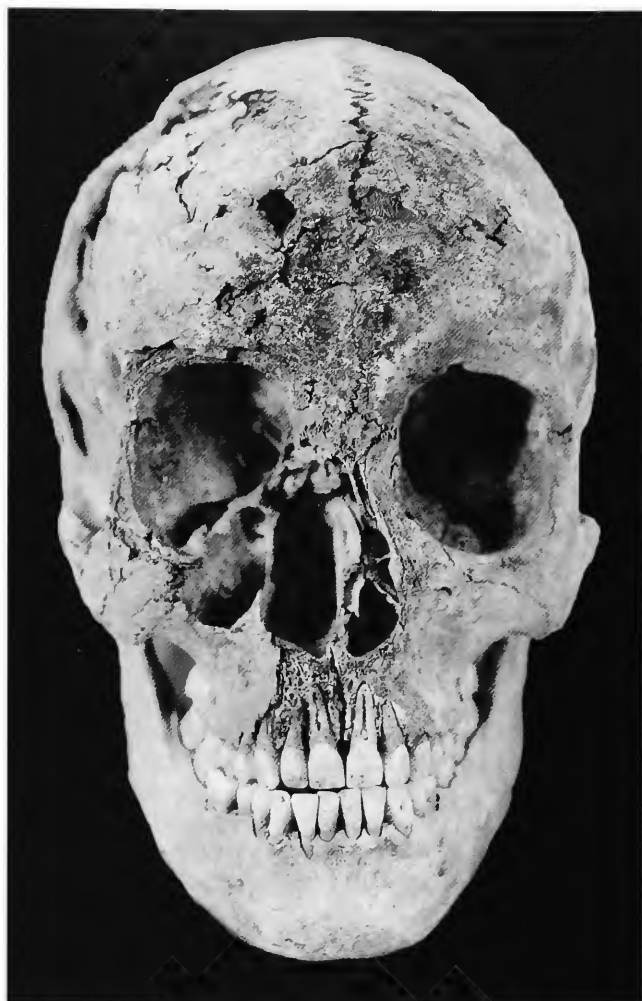


FIGURE 80.—Skull of burial 546 showing unfused metopic suture.

No human remains were recovered.

BURIAL 552.—FN: Nails and coffin wood were the only associated artifacts. Coffin size suggests the burial was of a child 5 to 7 years of age.

No human remains were recovered.

BURIAL 553.—FN: The southern end of this burial ran into the head of burial 472, and the northern portion showed evidence of disturbance from an unexcavated burial. A coffin outline was associated with burial 553; only nails were recovered.

The incomplete remains are of a child. Very fragmentary bones present are the temporals (3) and fragments of vertebrae and ribs.

All deciduous teeth are present, in occlusion, except the maxillary right lateral incisor, maxillary central incisor, and mandibular left central incisor.

Permanent teeth present, not in occlusion, are the first molars, central incisors, maxillary right canine, maxillary left lateral incisor, mandibular left canine, and mandibular left lateral incisor.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of about 2 years.

BURIAL 554.—FN: A coffin outline and plain and ornamental nails were in association with this burial. No other artifacts were recovered. The coffin was sized for a young child.

No human remains were recovered.

BURIAL 555.—FN: A coffin outline, plain and decorative nails, wood fragments, and porcelain buttons, which appeared to be at the neck and cuff of a garment, were associated with this burial.

The incomplete remains are of a child. Bones present are the frontal, left parietal, mandible, left temporal, both maxillae, and left tibia.

All deciduous teeth are present, in occlusion, except the maxillary right lateral incisor. Permanent teeth present, not in occlusion, are the first molars, central incisors, maxillary right second molar, maxillary right lateral incisor, mandibular right second premolar, mandibular canines, and mandibular left lateral incisor.

Carious lesions are in the deciduous dentition on the occlusal surfaces of the mandibular second molars; interproximal surfaces of the first molars (maxillary left with two lesions), the following maxillary teeth: right second molar, canines (right with two lesions), left lateral incisor (two lesions), central incisors, and the following mandibular teeth: all four molars and the right canine; and a cervical area of the maxillary left central incisor.

Enamel defects in deciduous teeth consist of linear vertical grooves on the maxillary right (1.9 mm) and left (2.2 mm) canines; linear horizontal pits on the maxillary right (2.5 mm) and left (4.4 mm) second molars and mandibular right (3.1 mm; Figure 81) and left (3.0 mm) second molars; and nonlinear ar-

rays of pits on the mandibular right (0.9 mm) and left (1.0 mm) canines.

One enamel defect, a linear horizontal groove, is in the permanent maxillary left central incisor (4.1 mm).

Preservation of the remains corresponds to weathering stage 4. Short (8 mm), light brown hair has adhered to the left parietal, near the temporal, and is associated with green black staining.

Dental formation suggests an age at death of 3.5 to 4.2 years.

Healed cribra orbitalia is visible in both orbits. Significant dental wear is visible on most teeth.

BURIAL 556.—FN: Nails and wood were the only artifacts associated with this burial.

One temporal bone (3) and teeth of an infant are present. Deciduous teeth, not in occlusion, are the second molars, maxillary right first molar, maxillary right canine, maxillary lateral incisors, mandibular first molars, and mandibular left canine.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth and the petrous portion of the temporal.

Dental formation suggests an age at death of 0.8 to 1.5 years.

BURIAL 557.—FN: Artifacts associated with this burial were a coffin outline with intact fabric attached to wood of the western and southern sides, loose fabric along the other sides of the coffin, plain and decorative nails, and tacks.

The first molars and right second molar of the deciduous maxillary dentition of an infant are present. The lack of wear and extent of crown formation suggest an age at death of 0.8 to 1.5 years.

BURIAL 558.—FN: Nails were the only associated artifacts.

The poorly preserved remains are of a child. Bones present are the occipital (2), left (2) and right (3) temporals, both maxillae (3), mandible (3), and vertebrae fragments.



FIGURE 81.—Linear horizontal pits on mandibular right second molar, burial 555.

All deciduous teeth are present, in occlusion.

Permanent teeth present, not in occlusion, are the first molars, maxillary left canine, maxillary right incisors, mandibular right canine, and mandibular central incisors.

Enamel defects in the permanent right maxillary dentition are linear horizontal pits in the canine and central incisor.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the teeth.

Dental formation suggests an age at death of about 2 years.

BURIAL 559.—FN: Nails and coffin wood were the only artifacts found in association with this burial. The coffin wood formed sections of the walls and floor.

Only teeth of a child are present. Deciduous teeth, in occlusion, are the second molars, maxillary first molars, maxillary canines, and mandibular right first molar. Permanent teeth present in occlusion are the first molars and incisors. Those not in occlusion are the first premolars, canines, and mandibular second molars.

Cariou lesions in deciduous teeth are on the occlusal surfaces of the maxillary right second molar and mandibular right second molar (three lesions) and the interproximal surface of the maxillary left first molar.

In the permanent dentition, carious lesions are on the occlusal surface of the mandibular left first molar (two lesions) and smooth surfaces of the maxillary right first molar and mandibular left first molar.

Enamel defects in the permanent dentition consist of linear horizontal grooves on the mandibular right canine (two defects, 3.3 mm, 4.0 mm), linear horizontal pits on the maxillary left (10.3 mm) and right (10.2 mm) lateral incisors, and a single pit on the maxillary left canine (6.0 mm).

The extent of dental formation suggests an age at death of 7 to 8 years.

BURIAL 560.—FN: A partial coffin outline and nails were in association with this burial. No other artifacts were present.

Bones present are the left (2) and right (3) temporals and several vertebrae fragments of an infant.

Deciduous teeth present are the mandibular second molars, not in occlusion.

Permanent teeth present, not in occlusion, are the maxillary first molars and mandibular right first molar.

Preservation of the remains corresponds to weathering stage 5.

Dental formation suggests an age at death of 1 year.

BURIAL 561.—FN: A trench had disturbed the skeleton in the area of the distal femora. A coffin outline, nails, and fabric recovered along the vertebrae were in association with this burial. No other artifacts were present.

The incomplete remains are of an adult, probably female. Bones present are the cranium (1); mandible (1); both clavicles (1); sternum (2); sacrum (1); both scapulae (2); both ilia (1); right ischium (2); right pubis (2); all seven cervical vertebrae; 10 thoracic vertebrae; four lumbar vertebrae; all ribs; left humerus (1); proximal third (2) and remainder (1) of the right humerus; both radii (1); left ulna (1); distal third (2), distal epiphysis (3), and remainder (1) of the right ulna; proximal epiphysis

(1) and proximal (3), middle (2), and distal (1) thirds and distal epiphysis (3) of the left femur; proximal epiphysis (1) and proximal (2), middle (1), and distal (2) thirds of the right femur; proximal epiphyses (2) and diaphyses (3) of the tibiae; distal epiphysis of the right fibula (1); left hand navicular; left lunate; left triquetral; both greater multangulars; right lesser multangular; both capitates; both hamates; metacarpals; all proximal hand phalanges; seven middle hand phalanges; and seven distal hand phalanges.

The only permanent teeth present are the maxillary canines, in occlusion. The other permanent teeth, except the maxillary right second and third molars, were lost antemortem.

Two alveolar abscess are associated with the maxillary left premolars.

Enamel defects consist of linear horizontal grooves on the maxillary right (two defects, 2.8 mm, 1.6 mm) and left (two defects, 2.0 mm, 2.9 mm) canines.

Preservation of the remains corresponds to weathering stage 2. Green staining is on the vertebrae. Black staining is on the lower leg bones.

Dental loss, cranial suture closure, and arthritic change suggest an age at death of 60 to 80 years. Pelvic and general skeletal morphology suggest likely female sex.

A maxillary torus is present. The bones of the cranial vault are unusually thick. Arthritic changes are apparent at the temporomandibular joints, mandibular condyles, clavicles, right acetabulum, right femoral head (some eburnation present), and vertebrae. The second and third cervicals and some lower cervicals are fused on both the dorsal and ventral surfaces.

BURIAL 562.—FN: This burial was below burial 553 and above burial 541. A coffin outline and nails were in association with the burial. Wood recovered was around fragments of possible metal pins, and traces of red or pink paint were found around portions of the outline and center of the coffin.

Both temporals (3) and the following deciduous teeth, not in occlusion, of an infant are present: maxillary canines, maxillary left incisors, mandibular molars, and mandibular left canine.

Preservation of the remains corresponds to weathering stage 5.

Dental formation suggests an age at death of 0.8 to 1.5 years.

BURIAL 563.—FN: The human remains had been disturbed from the lower leg down. A coffin outline, nails, and wood were the only artifacts in association with this burial.

The incomplete remains are of an adult female. Bones present are the frontal (3); both parietals (2); occipital (2); both temporals (2); left (2) and right (3) zygomatics; left maxilla (2); mandible (1); both clavicles (1); sternum (2); sacrum (2); left (3) and right (2) scapulae; both ilia (2); left (2) and right (1) ischia; right pubis (1); left (1) and right (2) patellae; all vertebrae; all ribs; proximal third (2) and remainder (1) of the left humerus; right humerus (1); proximal epiphysis (1) and remainder (2) of the left radius; middle third (1) and remainder (2) of the right radius; proximal third (1) and remainder (2) of the left ulna; right ulna (1); distal epiphysis (1), distal third (1), and remainder (2) of the left femur; proximal epiphysis (1), proximal third (1), and remainder (2) of the right femur; proximal epiphysis (2)

and diaphysis (3) of the left tibia; proximal epiphysis (2) and proximal (2), middle (1), and distal (2) thirds of the right tibia; proximal (3), middle (2), and distal (3) thirds of the left fibula; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the right fibula; right hand navicular; both lunates; right triquetral; right greater multangular; right lesser multangular; both capitates; both hamates; metacarpals; nine proximal phalanges; seven middle hand phalanges; and five distal hand phalanges.

All permanent mandibular and left maxillary teeth were lost antemortem except the maxillary left canine, lost postmortem.

Preservation of the remains corresponds to weathering stage 2. Black staining is on the remains. Orange staining, likely rust, is on the left mandible near the mental foramen.

The loss of teeth and arthritic change suggest an age at death of 50 to 65 years. Pelvic and general skeletal morphology suggest female sex.

Pathologies detected were arthritic lipping on both glenoid fossae of the scapulae and on the mandibular condyles; unusually thick cranial bones; a bony nodule on the sternal, inferior end of the right clavicle; complete fusion of the first two cervical vertebrae on the left side; eburnation of the second and third cervical vertebrae in the articular facet area; osteophytosis and pitting concentrated mostly on the cervical vertebrae; small nodules fused to the left second metacarpal and right third metacarpal; bony exostoses on the distal end of a fibula; and enthesophytes in the obturator foramina.

BURIAL 564.—FN: A coffin outline and nails were in association with this burial. A small straight pin was found attached to a cranial fragment.

The petrous portions of both temporals (3), other bone fragments, and teeth of an infant are present. Deciduous teeth, not in occlusion, are the molars and maxillary left canine. Permanent teeth, not in occlusion, are the maxillary left first molar and mandibular left central incisor.

Preservation of the remains corresponds to weathering stage 5.

Dental formation suggests an age at death of about 1 year.

BURIAL 565.—FN: Nails and a button recovered from the lumbar vertebrae were the only associated artifacts.

The moderately well-preserved remains are of an adult male. Bones present are those of the cranial vault (1); both zygomatics (1); both maxillae (2); both palatines (1); mandible (1); both clavicles (2); sacrum (2); both scapulae (3); both ilia (2); left (2) and right (3) ischia; left (3) and right (1) patellae; all cervical vertebrae; eight thoracic vertebrae; all lumbar vertebrae; three left and seven right ribs; epiphyses (2) and diaphysis (1) of the left humerus; proximal epiphysis (2) and remainder (1) of the right humerus; proximal epiphysis (2) and diaphysis (3) of the left radius; right radius (1); proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the left ulna; right ulna (1); left femur (2); proximal third (1) and remainder (2) of the right femur; both tibiae (2); proximal epiphyses (3) and remainder (2) of the fibulae; right hand navicular; right lunate; right triquetral; right pisiform; right lesser multangular; right capitate; three left metacarpals of undetermined digit; right metacarpals;

seven proximal hand phalanges; four middle hand phalanges; eight distal hand phalanges; both calcanei; both tali; left cuboid; right first cuneiform; both first metatarsals; left fifth metatarsal; two left and two right metatarsals of undetermined digit; and one proximal foot phalanx.

All permanent maxillary teeth except the first premolars, right canine, and both lateral incisors, and all permanent mandibular teeth are present, in occlusion.

Carious lesions are on the occlusal surfaces of the maxillary right first molar and mandibular third molars. An alveolar abscess is on the maxillary right third molar.

Preservation of the remains corresponds to weathering stage 3. Green staining is on the right innominate and black staining is on the long bones and vertebrae.

Cranial suture closure and the extent of arthritic change suggest an age at death of 35 to 45 years. Pelvic and general skeletal morphology suggest male sex.

Maximum femur length is 42.9 cm, suggesting a living stature of about 163.5 cm (5 ft 4.4 in).

Pathological conditions detected were extensive lipping on the dens of the second cervical vertebra and the corresponding facet of the first cervical; extensive arthritic change on the distal right first metacarpal, palmar surface; slight arthritic pitting in both temporomandibular joints; slight lipping on the right scapula glenoid, right distal radius, and proximal ulna; strong bony ridges on the palmar surfaces of the phalanges of both hands; an enlarged left mandibular foramen and mylohyoid groove; bicondylar breadth such that the condyles extend considerably past the temporo-mandibular fossae, but no warping appears to be present, as the teeth occlude perfectly; ossicles in many of the sutures, most noticeably in the lambdoidal, which shows ossicles throughout the entire suture, with a resulting occipital bulge; the joint capsules of both femoral heads slightly extended along the anterior and posterior surfaces; the left maxillary canine and first premolar rotated distally, causing wear facets to be formed on several opposing teeth, which at first appeared to be pipewear; and moderately advanced alveolar resorption.

BURIAL 566.—FN: Plain nails, brass headed nails, and wood were in association with this burial. No other artifacts were recovered.

The incomplete remains are of a child. Present are the bones of the cranial vault (2); left (3) and right (2) zygomatics; both maxillae (2); both palatines (2); mandible (2); proximal (3), middle (2), and distal (3) thirds of the left humerus; middle third (3) of the right humerus; proximal third (2) and remainder of the diaphysis (3) of the left femur; diaphysis (3) of the right femur; middle third (3) of the left tibia; and diaphysis (3) of the right tibia.

Permanent teeth present, in occlusion, from the maxillae are the first molars, premolars, canines, and incisors, and from the mandible all teeth except the third molars. The maxillary second molars and mandibular third molars are present but are not in occlusion.

Carious lesions are on the occlusal surfaces of the maxillary right first premolar and maxillary left first molar; interproximal

surfaces of the maxillary premolars, maxillary right canine, and maxillary right central incisor; smooth surfaces of the maxillary first molars; and large surfaces of the mandibular first molars.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the cranium and mandible, and red staining is on the right humerus. Light-colored hair about 33 mm long is also present.

The extent of dental formation suggests an age at death of 10.7 to 12.3 years.

Healed cribra orbitalia is in both orbits.

BURIAL 567.—FN: The southern half of the burial had been disturbed by a backhoe, and only the coffin outline of the northern end remained. The only artifacts present were plain and ornamental nails and wood. The disturbed grave appears to have been made for an adult.

No human remains were recovered.

BURIAL 568.—FN: A coffin outline and nails were associated with this burial. No other artifacts were recovered.

One petrous portion of a temporal (3) and the following deciduous teeth, in occlusion, of a young child are present: the second molars, maxillary right first molar, maxillary left canine, mandibular left first molar, and mandibular right canine. Permanent teeth present but not in occlusion are the first molars, central incisors, and mandibular left lateral incisor.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the cranium fragments and dentition.

The extent of dental formation suggests an age at death of about 2.2 years.

BURIAL 569.—FN: A coffin outline and wood were associated with this burial. No other artifacts were present.

Bones present are the occipital (3) and temporals (3) of a young child.

Deciduous teeth present, in occlusion, are the maxillary right second molar, maxillary right canine, and mandibular right first molar.

Permanent teeth present, not in occlusion, are the maxillary right first molar, maxillary central incisors, and mandibular right first molar.

Preservation of the remains corresponds to weathering stage 5. White staining is on the endocranial surface of the occipital.

The extent of dental formation suggests an age at death of 2 to 3 years.

BURIAL 570.—FN: A coffin outline, nails, wood, white porcelain buttons recovered around the midsection of the coffin, and rickrack were in association with this burial.

The petrous portions of the temporals (3) and deciduous second molars and mandibular right first molar, not in occlusion, of an infant are present.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 0.8 to 1.5 years.

BURIAL 571.—FN: Wood, nails, brick, and a probable coffin outline were present.

The size of the outline suggests an age at death of 10 to 14 years.

No human remains were recovered.

BURIAL 572.—FN: Nails were the only artifacts associated with this burial; their placement delimited the perimeter of the coffin.

Bones present are the petrous portions of the temporals (3) and vertebrae fragments of a young infant.

Deciduous teeth present, not in occlusion, are the first molars, maxillary right second molar, maxillary central incisors, and mandibular right canine.

The extent of dental formation suggests an age at death of about 2 months.

BURIAL 573.—FN: A coffin outline, decorative and plain nails, and wood fragments were in association with this burial. No other artifacts were recovered.

The deciduous left maxillary second molar, deciduous mandibular left canine, and permanent maxillary left first molar, none of which are in occlusion, of an infant are present.

The extent of dental formation suggests an age at death of 1.5 to 2 years.

BURIAL 574.—FN: A coffin outline, nails, and wood were in association with this burial, and a copper coin, with apparent fabric attached, was recovered in the region of the left proximal femur. The coin's location and the evidence of fabric suggest it was originally in the left pocket. No other artifacts were present.

The incomplete remains are of an adult female. Bones present are the frontal (3); sacrum (3); left (2) and right (3) ilia; four lumbar vertebrae; middle thirds (3) of the humeri; middle third of the left radius; distal third of the right radius; middle third of the left ulna; both femora (2) minus the distal epiphyses; distal epiphysis (2) and diaphysis (2) of the left tibia; diaphysis (2) of the right tibia; and middle thirds (2) of the fibulae.

Permanent teeth present, in occlusion, are the maxillary right first premolar, maxillary left lateral incisor, mandibular right canine, and mandibular lateral incisors.

Carious lesions are on the interproximal surfaces of the maxillary left lateral incisor, mandibular right canine, and mandibular right lateral incisor.

Preservation of the remains corresponds to weathering stage 4.

The lack of osteophytosis on the lumbar vertebrae and slight lipping on the distal tibia articular surface suggest the remains represent a young adult, likely 25 to 35 years of age. The extent of pelvic morphology and general gracility of the remains suggest female sex.

BURIAL 575.—FN: Nails and wood were the only artifacts found in association with this burial.

Present is a humerus diaphysis (3) of undetermined side from an adult of undetermined age. Preservation of the remains corresponds to weathering stage 4.

BURIAL 576.—FN: This area had been heavily disturbed and the coffin outline could be only partially established. With the disturbance, it was hard to determine if the skeletal remains were from multiple burials or a single one. The commingled artifacts in the disturbed area were nails and ornamental coffin escutcheons. The southern half of the burial could be established; it contained nails and fabric.

The incomplete remains are of an adult of undermined sex. Bones present are the frontal (1); right parietal (2); right zygomatic (2); left (1) and right (2) maxillae; proximal (3), middle (2), and distal (3) thirds of the left femur; diaphysis (3) of the left tibia; epiphyses (3) and proximal (3) and middle (3) thirds of the right tibia; distal epiphysis (3) of the right fibula; right calcaneus; and right talus.

Permanent maxillary teeth present, in occlusion, are the second molars, right second premolar (damaged), right canine (damaged), right lateral incisor, and central incisors. The maxillary right third molar and right first premolar were lost antemortem.

Cariou lesions are on the interproximal surfaces of the maxillary second molars (two lesions on each), right lateral incisor, and central incisors; smooth surfaces of the central incisors; and large surfaces of the right second premolar and right canine.

Preservation of the remains corresponds to weathering stage 4. A maxillary right third molar is present from another individual.

The extent of occlusal dental attrition and degenerative skeletal changes suggest an age at death of 35 to 55 years.

BURIAL 577.—FN: This burial had been disturbed. Coffin nails, fabric, and more modern building materials were recovered. This burial and burial 614 likely refer to the same individual.

Bones present are the proximal epiphysis (2) and proximal (3), middle (2), and distal (3) thirds of the left tibia and the diaphysis (3) of the right tibia (3) of an adult.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the left tibia.

BURIALS 576, 577.—FN: See burial 576. These remains were recovered from the disturbed area and had been labeled with both burial numbers.

Present are one cervical vertebra, one rib, two long-bone diaphysis (3) fragments, and one metacarpal of undetermined side and digit of a probable adult.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

BURIAL 578.—FN: Artifacts found in association with this burial were tacks; plain and decorative nails, some with wood adhering to them; a fairly complete cloth suit with black satin epaulets (Beynon, 1989:146); metal buttons recovered along the left lower arm bones; and a cloth with pinked edges recovered from the region of the left clavicle.

The incomplete remains are of an adult male. Present are the bones of the cranial vault (2); both zygomatics (2); both maxillae (2); both palatines (1); mandible (2); right clavicle (3); sacrum (2); both scapulae (3); both ilia (2); both ischia (2); left pubis (2); all cervical vertebrae; two thoracic vertebrae; one lumbar vertebra; left humerus (3); epiphyses (2) and proximal (3), middle (2), and distal (2) thirds of the right humerus; proximal epiphysis (3) and proximal third (2) of the left radius; proximal epiphysis (2) and proximal third (3) of the right radius; proximal epiphysis (3) and proximal third (3) of the left ulna; proximal epiphysis (2) and proximal third (3) of the right ulna; both femora (2); both tibiae (2); middle third (3) of the left fibula; diaphysis (3) of the right fibula; one metacarpal, side and digit undetermined; both

calcanei; both tali; left cuboid; and six metatarsals, side and digits undermined.

Permanent teeth present, in occlusion, from the maxillae are the molars, premolars, canines, and right lateral incisor; all teeth from the mandible are present.

Cariou lesions are on the occlusal surfaces of the maxillary first and second molars and maxillary left second premolar and on the interproximal surfaces of the maxillary right third molar and maxillary right second premolar.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the left femoral head, right ulna, right innominate, right humerus, and left radius. Black staining is on the external cranium, innominates, sacrum, and humeri.

Dental formation, dental attrition, and cranial suture closure suggest an age at death of 21 to 26 years. General skeletal robusticity suggests male sex.

Maximum femur length is 44.5 cm, suggesting a living stature of about 167.3 cm (5 ft 5.9 in).

BURIAL 579.—FN: Coffin nails and porcelain buttons were in association with this burial. Four buttons were recovered from the vertebral region, and the other two were found near the right and left lower arm bones. No other artifacts were present.

The incomplete remains are of an adult male. Bones present are the frontal (2); both parietals (2); occipital (3); left (2) and right (3) temporals; both maxillae (2); both palatines (1); mandible (2); left (2) and right (3) clavicle; both scapulae (3); both ilia (3); both patellae (3); all cervical vertebrae; three thoracic vertebrae; five lumbar vertebrae; five ribs of undetermined side; epiphyses (3) and diaphysis (2) of the left humerus; right humerus (2); proximal epiphysis (3), proximal third (3), and remainder of the diaphysis (2) of the left radius; proximal (3), middle (2), and distal (3) thirds of the right radius; proximal epiphysis (2) and diaphysis (2) of the left ulna; proximal epiphysis (2) and proximal (3) and middle (3) thirds of the right ulna; epiphyses (2), proximal thirds (3), and remainder of the diaphyses (2) of the femora; epiphyses (3), proximal thirds (3), and remainder of the diaphyses (2) of the tibiae; middle third of the left fibula (3); middle third of the right fibula (2); two metacarpals, side and digit undetermined; and one metatarsal, side and digit undetermined.

Permanent teeth present, in occlusion, are all maxillary teeth except the right first molar (lost antemortem) and from the mandible the right third molar, second molars, right first molar, premolars, and canines. The maxillary right second molar is damaged.

Cariou lesions are on the occlusal surfaces of the maxillary left first and second molars, mandibular right third molar, and mandibular second molars; interproximal surfaces of the maxillary right premolars and maxillary central incisors; and large surfaces of the maxillary right second molar and mandibular right first molar.

Preservation of the remains corresponds to weathering stage 3.

The extent of osteophytosis, dental attrition, and cranial suture closure suggest an age at death of 25 to 35 years. Skeletal morphology suggests probable male sex.

The right maxillary third molar appears to represent two teeth fused together at both the crown and the root (Figure 82).

BURIAL 580.—FN: A coffin outline, a large section of the coffin floor, plain and decorative nails, and porcelain buttons were in association with this burial.

The poorly preserved remains are of an adolescent. Bones present are the frontal (3), both parietals (2), occipital (3), both temporals (2), right maxilla (2), right palatine (2), mandible (3), one cervical vertebra, and diaphysis of the left tibia (3).

Permanent teeth present in occlusion are the second molars, right first molars, second premolars, right first premolars, canines, left lateral incisors, central incisors, and mandibular right lateral incisor. Those not in occlusion are the right third molars and maxillary left third molar.

Carious lesions are on the occlusal surface of the maxillary second molars and mandibular right first molar; interproximal surfaces of the maxillary right first molar (two lesions), maxillary left central incisor, and mandibular right first molar; and smooth surface of the mandibular right second molar.

Enamel defects consist of linear horizontal grooves on the maxillary right first molar (3.1 mm) and diffuse-boundary hypocalcification on the maxillary right second molar (4.9 mm) and mandibular right second molar (4.9 mm).

Preservation of the remains corresponds to weathering stage 4. Black staining is on the parietals.

Dental formation suggests an age at death of 15 to 16 years.

BURIAL 581.—FN: Nails were the only artifacts present with this empty grave. No coffin was evident.

Only one probable cranial fragment is present; its preservation corresponds to weathering stage 4. Field notes indicate this fragment might relate to nearby burial 576.



FIGURE 82.—Abnormal fusion of teeth, area of right maxillary third molar, burial 579.

BURIAL 582.—FN: The southern end of the coffin had been disturbed. A coffin outline, wood, and plain and decorative nails were the only associated artifacts.

No human remains were recovered.

BURIAL 583.—FN: There was evidence that a backhoe disturbed the lower leg region. A coffin outline, nails, and porcelain buttons were in association with this burial.

The incomplete remains are of an adult male. Present are the bones of the cranial vault (2); left (1) and right (2) zygomatics; both maxillae; left (2) and right (1) palatines; mandible (2); both clavicles (2); sacrum (3); both scapulae (3); both ilia (2); right ischium (2); right pubis (2); right patella (2); all vertebrae; one first rib; four left and four right other ribs; proximal epiphysis (3) and proximal (2), middle (3), and distal (2) thirds of the left humerus; proximal epiphysis (3), proximal third (3), and remainder (2) of the right humerus; middle (3) and distal (2) thirds and distal epiphysis (2) of the left radius; epiphyses (2) and proximal (2), middle (2), and distal (3) thirds of the right radius; proximal (3), middle (2), and distal (3) thirds of the left ulna; proximal epiphysis (2), distal third (3), and remainder of the diaphysis (2) of the right ulna; distal epiphyses (3) and remainder (2) of the femora; proximal epiphysis (3) of the left tibia; both hand naviculars; left triquetral; left pisiform; left capitate; three left and one right metacarpals, digits undetermined; four proximal hand phalanges; and two middle hand phalanges.

All permanent teeth are present, in occlusion, except the maxillary right third molar, which is not in occlusion (impacted).

Carious lesions are on the occlusal surface of the maxillary left third molar and interproximal surfaces of the maxillary left incisors, mandibular right canine, and mandibular right incisors.

Enamel defects consist of linear horizontal grooves on the maxillary left (two defects, 2.9 mm, 4.4 mm) and right (three defects, 2.8 mm, 4.6 mm, 6.5 mm) central incisors, maxillary left canine (5.6 mm), and mandibular left canine (5.9 mm); linear horizontal pits on the mandibular left (n/a) and right (1.7 mm) first molars; and nonlinear arrays of pits on the mandibular left (5.2 mm) and right (5.2 mm) canines.

Preservation of the remains corresponds to weathering stage 3. Brown black staining is concentrated on the lingual surfaces of the posterior teeth, probably representing tobacco staining.

The extent of osteophytosis and dental attrition suggest an age at death of 30 to 45 years. Pelvic and general skeletal morphology suggest probable male sex.

Three areas of pipewear are present. The first area involves the mesial occlusal surface of the right mandibular second premolar, the distal aspect of the buccal and occlusal surfaces of the mandibular right first premolar, the entire occlusal surface of the maxillary right first premolar, and the distal aspect of the occlusal surface of the right maxillary canine. The diameter of the resulting opening is about 6.8 mm (Figure 83).

The second area involves the distal aspect of the occlusal and labial surfaces of the left mandibular canine, the mesial aspect of the occlusal surface of the left mandibular first premolar, the distal aspect of the labial and occlusal surfaces of the left lateral maxillary incisor, and the mesial aspect of the occlusal surface of

the left maxillary canine. The resulting opening is about 6.2 mm in diameter (Figure 84).

The third area involves the distal aspect of the buccal and occlusal surfaces of the left first mandibular premolar, the mesial aspect of the occlusal surface of the left mandibular second premolar, the distal aspect of the occlusal surface of the maxillary left canine, and the mesial aspect of the occlusal surface of the left maxillary first premolar. The resulting opening is about 6.5 mm in diameter (Figure 84).

A notch is in the maxillary right central incisor, slightly mesial to the center of the crown (Figure 85). The notch is visible on the labial surface, near the occlusal edge, and forms a groove over the entire occlusal surface. The groove (Figure 86) is about 1 mm in width. No corresponding notch is on the mandibular incisors, but the anterior teeth are crowded and rotated so that the mandibular area adjacent to the maxillary notch falls between the central incisors. This appears to represent a tailor's notch, probably due to holding pins, needles, thread, or similar objects between the teeth.

Extensive calculus deposits are on the teeth. Probable healed *cribra orbitalia* is in both orbits but is more defined on the left.

BURIAL 584.—FN: A backhoe had disturbed the southern end of the coffin, removing the feet and portions of the lower-leg bones. A coffin outline, wood, plain and decorative nails, and straight pins recovered in the upper cranial region were in association with this burial.

The incomplete remains are of an adult female. Present are the bones of the cranial vault (2); left zygomatic (2); mandible (3); left clavicle (3); right scapula (3); ilium, side unknown (2); rib fragments; second cervical vertebra; two lumbar vertebrae;

proximal (3), middle (2), and distal (2) thirds of the left humerus; distal epiphysis (3), distal third (3), and remainder of the diaphysis (2) of the right humerus; middle third (3) of the left radius; proximal (3), middle (2), and distal (3) thirds of the right radius; middle third (2) of the left ulna; diaphysis (3) of the right ulna; proximal epiphysis (2) and proximal (3), middle (2), and distal (3) thirds of the left femur; proximal epiphysis (2), middle third (2), and remainder (3) of the right femur; proximal (3), middle (2), and distal (3) thirds of the tibiae; proximal (3), middle (2), and distal (3) thirds of the left fibula; and middle third (3) of the right fibula.

Permanent teeth present, in occlusion, are the maxillary left third molar, maxillary right first molar, and the following mandibular right teeth: first premolar, canine, and central incisors.

One carious lesion is on the occlusal surface of the maxillary right first premolar.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the proximal right humerus. Dark blond hair, about 4 cm long, is present.

The extent of cranial suture closure and dental attrition suggest an age at death of 25 to 35 years. Skeletal morphology suggests female sex.

BURIAL 585.—FN: A coffin outline, wood, and plain and decorative nails were the only artifacts associated with this burial.

The incomplete remains are of an adult female. Bones present are the frontal (2); both parietals (2); both temporals (2); both maxillae (3); mandible (3); sacrum (3); left (2) and right (3) ilia; both patellae (2); one thoracic vertebra; one lumbar vertebra; proximal epiphysis (3) and proximal (3), middle (2), and distal (3) thirds and distal epiphysis (2) of the left fe-



FIGURE 83.—Pipewear on right side of dentition, burial 583.

mur; proximal epiphysis (3) and proximal (3), middle (2), and distal (2) thirds of the right femur; proximal (3), middle (2), and distal (3) thirds and distal epiphysis (3) of the left tibia; diaphysis (2) and distal epiphysis (3) of the right tibia; both calcanei; and right talus.

Permanent teeth present, in occlusion, from the maxillae are the left premolars and central incisors, and from the mandible the left second premolar, right canine, and right incisors. The mandibular three right molars and right second premolar were lost antemortem.



FIGURE 84.—Pipewear on left side of dentition, burial 583.



FIGURE 85.—Tailor's notch, maxillary right central incisor, burial 583.



FIGURE 86.—Close-up view of tailor's notch, maxillary right central incisor, burial 583.

Cariou lesions are on the interproximal surfaces of the maxillary left second premolar, mandibular right canine, and mandibular right incisors.

Preservation of the remains corresponds to weathering stage 4. Hair is with the remains. Apparent wood is adhering to the left distal femur.

The extent of cranial suture closure and dental attrition suggest an age at death of 30 to 45 years. General gracility of the skeleton suggests female sex.

There is an open metopic suture and moderate dental attrition.

BURIAL 586.—FN: A coffin outline, wooden floor fragments, nails, decorative nails or screws, and white porcelain buttons were in association with this burial.

The incomplete remains are of an adult male. Present are the bones of the cranial vault (2); left zygomatic (2); both maxillae (2); both palatines (1); mandible (1); both clavicles (2); sacrum (2); both scapulae (3); both ilia (2); both ischia (2); left (2) and right (3) pubes; both patellae (2); all vertebrae; both first ribs; seven left and six right ribs; both humeri (2) minus the proximal

epiphyses; proximal epiphysis (3) and remainder of the left radius; right radius (2); distal epiphysis (3) and remainder (2) of the left ulna; right ulna (2); both femora (2); both tibiae (2); proximal epiphysis (2) and proximal (3) and middle (2) thirds of the left fibula; middle third of the right fibula; right greater multangular; five metacarpals, side and digits undetermined; both calcanei; both tali; left cuboid; left foot navicular; left first metatarsal; and two left metatarsals, digits undetermined.

All permanent teeth are present, in occlusion, except the maxillary third molars and mandibular right third molar, which are not in occlusion.

Cariou lesions are on the interproximal surfaces of the maxillary central and left lateral incisors.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the posterior proximal right femur and the distal anterior area of the left tibia. Some apparent wood is adhering to the left ilium.

The extent of cranial suture closure and dental attrition suggest an age at death of 25 to 35 years. Cranial and pelvic morphology suggest probable male sex.

Maximum femur length is 48.5 cm, suggesting a living stature of about 177 cm (5 ft 9.7 in).

Slight alveolar resorption is present. Remodeled, abnormally deposited periosteal bone is on the lateral surface of the proximal two-thirds of the diaphysis of the left tibia, lateral surface of the middle two-thirds of the diaphysis of the right tibia, and posterior surface of the middle third of the diaphyses of both femora.

BURIAL 587.—FN: A coffin outline, wooden floor and lid fragments, coffin nails, and porcelain buttons were in association with this burial. No other artifacts were recovered.

The incomplete remains are of an adult male. Bones present are the frontal (1); both parietals (1); occipital (1); left (2) and right (1) temporals; both zygomatics (1); both maxillae (1); right palatine (3); mandible (1); both clavicles (2); sacrum (2); both scapulae (3); left (2) and right (3) ilia; left ischium (3); left (1) and right (3) patellae; four thoracic vertebrae; three lumbar vertebrae; rib fragments; left humerus (2) minus the proximal epiphysis; distal epiphysis (2) and diaphysis (1) of the right humerus; both radii (2); left ulna (2); proximal epiphysis (2) and proximal (2) and middle (3) thirds of the right ulna; epiphyses (2) and diaphyses (1) of the femora; distal third (1) and remainder (2) of the left tibia; proximal epiphysis (2), distal epiphysis (3), and diaphysis (1) of the right tibia; middle (3) and distal (3) thirds and distal epiphysis (2) of the left fibula; diaphysis (2) of the right fibula; left first, third, and fourth metacarpals; two other metacarpals, side and digits undetermined; one proximal hand phalanx; both calcanei; both tali; left cuboid; left first cuneiform; left foot navicular; left third metatarsal; left fifth metatarsal; and four other metatarsals, side and digits undetermined.

All permanent teeth are present, in occlusion, except the maxillary right second premolar and maxillary left first premolar, both lost antemortem.

Enamel defects consist of linear horizontal grooves on the maxillary right canine (two defects, 4.6 mm, 3.8 mm).

Preservation of the remains corresponds to weathering stage 4.

Maximum femur length is about 43.6 cm, suggesting a living stature of about 165 cm (5 ft 4.9 in).

BURIAL 588.—FN: A coffin outline, nails, porcelain buttons, and metal buttons were in association with this burial. No other artifacts were present.

The incomplete remains are of an adult male. Bones present are the frontal (3); left maxilla (3); mandible (2); left scapula (3); both ilia (3); both ischia (3); left patella (1); left humerus (3) minus the proximal epiphysis; proximal epiphysis (3) and remainder (2) of the right humerus; proximal epiphyses (3) and remainder (2) of the radii; proximal epiphysis (3) and proximal (2), middle (2), and distal (3) thirds of the left ulna; proximal epiphysis (3), proximal third (2), and remainder of the diaphysis (3) of the right ulna; distal epiphysis (3) and remainder of the left femur (2); right femur (2); epiphyses (2) and diaphysis (1) of the left tibia; left fibula (2) minus the proximal epiphysis; both calcanei; both tali; all left metatarsals; and right fifth metatarsal.

All permanent maxillary teeth are present, in occlusion, except the first molars, second premolars, left first premolar, and right central incisor. All permanent mandibular teeth are present, in occlusion, except the third molars and (all lost antemortem) the right second molar, left first molar, and right second premolar.

Cariou lesions are on the interproximal surfaces of the maxillary right first premolar, maxillary right canine, and mandibular right first molar (two lesions), and the smooth surface of the maxillary right second molar.

Enamel defects consist of linear horizontal grooves on the maxillary left (3.3 mm) and right (2.9 mm) canines.

Preservation of the remains corresponds to weathering stage 4. Dark brown stains are on the teeth, perhaps from tobacco use.

The extent of occlusal dental attrition and degenerative bone changes suggest an age at death of 35 to 45 years. Skeletal robusticity suggests male sex.

BURIAL 589.—FN: A coffin outline, tacks, nails, and porcelain buttons were in association with this burial.

The poorly preserved remains are of an adult male. Present are all the bones of the cranium (2) except the left zygomatic; mandible (1); both clavicles (2); both scapulae (3); left (2) and right (3) ilia; left (3) ischium; both patellae (2); rib fragments; first two cervical vertebrae and other vertebrae fragments; proximal epiphysis (3) and remainder (2) of the left humerus; proximal epiphysis (3), proximal third (3), and remainder (2) of the right humerus; left radius (2); epiphyses (3) and diaphysis (2) of the right radius; left ulna (2) minus the distal epiphysis; proximal epiphysis (3), distal third (3), and remainder of the diaphysis (2) of the right ulna; both femora (2); both tibiae (2); proximal (3), middle (2), and distal (2) thirds and distal epiphysis (3) of the left fibula; proximal epiphysis (3) and proximal (2), middle (3), and distal (2) thirds of the right fibula; both calcanei; both tali; right second metatarsal; and two other metatarsals.

Permanent teeth present, in occlusion, of the maxillae are the left second molar, right first molar, left second premolar, left canine, and left central incisor, and of the mandible the left first

premolar, right premolars, right canine, left lateral incisor, and right incisors.

Permanent teeth lost antemortem were the maxillary left first molar and from the mandible the third molars, left second molar, and right first molar.

Cariou lesions are on the interproximal surfaces of the maxillary left second premolar, mandibular left first premolar, and mandibular left lateral incisor.

Preservation of the remains corresponds to weathering stage 3.

Cranial suture closure, tooth loss, and tooth attrition suggest an age at death of 30 to 40 years. Skeletal robusticity suggests male sex.

The left radius displays enthesophytes in the area of the biceps attachment. The left femur displays well-remodeled thickening of the cortex of the upper third of the diaphysis (Figure 87). Radiographs revealed outer periosteal involvement of the cortex, but otherwise the cortex is intact. Lateral radiographs revealed a poorly organized lesion in the superior third of the diaphysis, with minimal density (Figure 88). Gross bone inspection revealed extensive remodeling. Obviously the lesion appeared long before death. The most likely diagnosis is ossified subperiosteal hematoma or bony reaction to a skin ulcer. The area involved is about 33 × 84 mm on the anterior third of the diaphysis.

BURIAL 590.—FN: A coffin outline, nails, and portions of the wooden coffin floor were in association with this burial. Other artifacts recovered were one penny found in the right eye orbit (dated 1842, Beynon, 1989:151); a brass earring in the region of the right temporal; a ring; a copper and glass pin found in the cervical/thoracic region; and copper wire, glass, and fabric (probably remnants of a bracelet) recovered from the right wrist. Blond braided hair was also present; a radiograph of it revealed a fragment (curved area) of at least one hairpin.

The incomplete remains are of a late adolescent or young adult female. Bones present are the frontal (2); left (3) and right (2) parietals; occipital (2); both temporals (2); left zygomatic (1); both maxillae (2); both palatines (1); mandible (2); left (2) and right (3) clavicles; left scapula (3); one ilium, side undetermined (3); first two cervical vertebrae; two thoracic vertebrae; five lumbar vertebrae; one first rib; three other ribs; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds and distal epiphysis (3) of the left humerus; middle third (2) and remainder (3) of the right humerus; proximal epiphysis (2), distal third (3), and remainder of the diaphysis (2) of the left radius; right radius (2); proximal epiphysis (3) and diaphysis (2) of the left ulna; proximal epiphysis (2) and diaphysis (2) of the right ulna; distal third (3), distal epiphysis (3), and remainder (2) of the left femur; middle third (2) and remainder (3) of the right femur; proximal third (3) and remainder (2) of the left tibia; epiphyses (2), middle third (2), and remainder of the diaphysis (3) of the right tibia; proximal epiphysis (2) and proximal (3), middle (2), and distal (3) thirds of the left fibula; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the right fibula; right lunate; both calcanei; both tali; both foot naviculars; right second metatarsal; both third metatarsals; right fourth metatarsal; right fifth



FIGURE 87.—Well-remodeled thickening of left femur, burial 589.

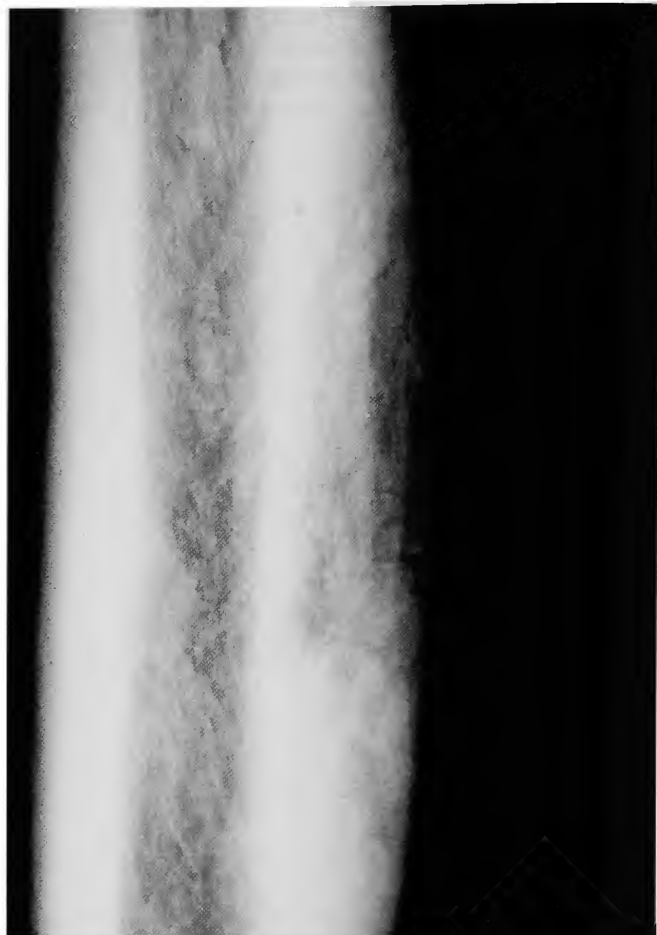


FIGURE 88.—Radiograph of well-remodeled thickening of left femur, burial 589.

metatarsal; three proximal foot phalanges; and one distal foot phalanx.

All permanent teeth are present, in occlusion, except the maxillary right third molar and mandibular third molars, which were not in occlusion, and the maxillary right first premolar and mandibular right second molar, which were lost antemortem.

Carious lesions are on the occlusal surface of the mandibular left second molar; interproximal surfaces in maxillary teeth on the right first molar, right second premolar, left first premolar (two lesions), and left canine; and smooth surfaces of the maxillary left third molar and maxillary second molars.

Enamel defects consist of linear horizontal grooves on the maxillary left (3.6 mm) and right (4.2 mm) central incisors, and discrete boundary hypocalcification in maxillary teeth on the left (3.5 mm) and right (4.1 mm) third molars, left (2.6 mm) and right (2.8 mm) second molars, left (2.7 mm) and right (3.5 mm) first molars, and right canine (3.8 mm).

Preservation of the remains corresponds to weathering stage 4. Copper staining is in the medial portion of the right orbit; ex-

terior surface of the left mandible, including the teeth; dorsal surface of the left scapular acromial spine area; and anterior surface of the left femoral neck, on the occipital, near the foramen magnum.

Cranial suture closure and dental attrition suggest an age at death of 17 to 22 years. General skeletal morphology suggests female sex.

Femur length is 44.2 cm, suggesting a living stature of about 163.3 cm (5 ft 4.3 in).

Healed cribra orbitalia is visible in both orbits. Three of the carious lesions on the maxillary dentition showed dental treatment in the form of gold-foil fillings on the interproximal surfaces (Figure 89). The affected teeth are the left canine, distal surface, 5 mm in diameter; left first premolar, mesial surface, 2 mm in diameter; and right second premolar, mesial surface, 2 mm in diameter.

BURIAL 591.—FN: A coffin outline, wood, plain and decorative nails, and white porcelain buttons were in association with this burial.

The incomplete remains are of an adult male. Bones present are the frontal (1); both parietals (2); occipital (1); both temporals (2); both zygomatics (1); both maxillae (1); both palatines (1); mandible (2); both scapulae (3); both ilia (3); both ischia (3); first two cervical vertebrae; left humerus (2); middle (3) and distal (2) thirds and distal epiphysis (2) of the right humerus; proximal (2) and middle (3) thirds of the left radius; proximal third (2) of the right radius; proximal epiphysis (1) and proximal (1) and middle (2) thirds of the left ulna; proximal epiphysis (2) and proximal (3) and middle (3) thirds of the right ulna; distal epiphysis (3) and remainder (2) of the left femur; right femur (2); proximal epiphysis (3) and remainder (2) of the left tibia; right tibia (2); diaphysis (2) of the left fibula; distal epiphysis (1) and diaphysis (1) of the right fibula; both calcanei; both tali; right cuboid; right third cuneiform; right foot navicular; all metatarsals except the right second; three proximal foot phalanges; and one distal foot phalanx.

All permanent teeth are present, in occlusion, except the maxillary right central incisor and mandibular right canine (lost post-mortem). The maxillary right lateral incisor is damaged.

Carious lesions are on the occlusal surfaces of the maxillary left third molar and mandibular second molars and the buccal crown surface of the maxillary right first molar.

One enamel defect, a linear horizontal groove, is on the mandibular left canine (~5.9 mm).

Preservation of the remains corresponds to weathering stage 4.

The extent of occlusal dental attrition and skeletal degenerative changes suggest an age at death of 35 to 50 years. Skeletal robusticity suggests male sex.

BURIAL 592.—FN: A coffin outline, nails, and wood were in association with the skeletal remains. No other artifacts were present.

The incomplete remains are of an adult female. Bones present are the frontal (2); both parietals (1); occipital (1); both temporals (1); right zygomatic (1); both maxillae (1); both palatines (1); mandible (1); right clavicle (2); right scapula (3); both ilia (2); all cervical vertebrae; two thoracic vertebrae; two right ribs; middle (2) and distal (2) thirds and distal epiphysis (2) of the left humerus; right humerus (2); epiphyses (2), proximal third (2), and remainder of the diaphysis (1) of the left radius; proximal epiphysis (2), proximal third (2), and remainder (1) of the right radius; proximal epiphysis (1) and proximal (1), middle (2), and distal (3) thirds of the left ulna; proximal epiphysis (1) and proximal (1) and middle (2) thirds of the right ulna; proximal epiphysis (1) and proximal (1), middle (2), and distal (3) thirds and distal epiphysis (3) of the left femur; proximal epiphysis (1) and proximal (2), middle (2), and distal (3) thirds and distal epiphysis (3) of the right femur; proximal epiphysis (3) and proximal (2), middle (2), and distal (1) thirds and distal epiphysis (2) of the left tibia; epiphyses (3) and diaphysis (2) of the right tibia; left fibula (2) minus the proximal epiphysis; proximal (3) and middle thirds (3) of the right fibula; right lunate; left capitate; left hamate; left fifth metacarpal; both calcanei; both tali; left cuboid; left cuneiforms; right first cuneiform; left metatarsals; right first metatarsal; two other right metatarsals, digits undetermined; and five proximal hand phalanges.



FIGURE 89.—Gold-foil fillings, burial 590.

All permanent teeth are present, in occlusion, except the maxillary left central incisor. The mandibular left canine was removed for histological analysis.

One enamel defect, a linear horizontal groove, is on the mandibular right canine (3.4 mm).

Preservation of the remains corresponds to weathering stage 3. Green staining is on the head of the right third rib and the right side of the centrum of the second thoracic vertebra.

The extent of tooth formation and bone maturation suggest an age at death of 20 to 25 years. The gracility of the skeleton suggests female sex.

BURIAL 593.—FN: A coffin outline and nails were in association with this burial. Gold earrings were recovered from the region of the temporals.

The incomplete remains are of an adult female. Bones present are the frontal (1); both parietals (1); occipital (2); both temporals (1); right zygomatic (1); both maxillae (1); both palatines (1); mandible (1); left (1) and right (2) clavicles; sternum (3); sacrum (3); both scapulae (3); both ilia (2); both ischia (2); right patella (3); all cervical vertebrae; eight thoracic vertebrae; three lumbar vertebrae; eight left ribs; both humeri (2); diaphyses (2) of the radii; proximal epiphysis (2) and proximal (1) and middle (2) thirds of the left ulna; proximal epiphysis (1) and proximal (1) and middle (2) thirds of the right ulna; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds and distal epiphysis (3) of the left femur; distal epiphysis (2) and remainder (1) of the right femur; distal third (2) and remainder (3) of the left tibia; proximal epiphysis (3) and proximal (2), middle (2), and distal (2) thirds and distal epiphysis (1) of the right tibia; middle (3) and distal (3) thirds of the left fibula; right fibula (2); both calcanei; both tali; left second through fifth metatarsals; and one other metatarsal, side and digit undetermined.

Permanent teeth present, in occlusion, are all maxillary teeth except the first molars (lost antemortem) and left central incisor (lost postmortem) and all mandibular teeth except the left first molar (lost antemortem). The maxillary right second premolar, mandibular left second molar, and mandibular right first molar are damaged. The mandibular right canine was removed for histological analysis.

Caries lesions are on the interproximal surfaces, in maxillary teeth, of the right third molar, left premolars, right first premolar, left canine, left lateral incisor, and right central incisor; interproximal surface of the mandibular right second premolar; and large surfaces of the maxillary left first molar, maxillary right second premolar, mandibular left second molar, and mandibular right first molar.

Enamel defects (Figures 90, 91) consist of linear horizontal grooves in the mandibular dentition on the left (5.7 mm) and right (5.6 mm) lateral incisors and left (5.0 mm) and right (4.9 mm) central incisors; linear horizontal pits in the maxillary dentition on the left (7.2 mm) and right (6.8 mm) canines, left (8.1 mm) and right (6.9 mm) lateral incisors, and right central incisor (horizontal groove also present, 5.7 mm) and in the mandibular

dentition on the left canine (7.6 mm); and diffuse-boundary hypocalcification on the maxillary right third molar (n/a).

Preservation of the remains corresponds to weathering stage 3.

The extent of occlusal dental attrition and cranial suture closure suggest an age at death of 25 to 35 years. Skeletal gracility suggests female sex.



FIGURE 90.—Linear horizontal pits and grooves, anterior dentition, burial 593, labial view.



FIGURE 91.—Linear horizontal pits and grooves, anterior dentition, burial 593, lingual view.

Maximum femur length is 44.3 cm, suggesting a living stature of about 163.5 cm (5 ft 4.3 in).

The maxillary third molars are peg-shaped (Figure 92). The left clavicle, grossly and in radiographs, displays a poorly defined cortex within the sternal third of the diaphysis.

BURIAL 594.—FN: A coffin outline, nails, and one shell button were in association with this burial. Evidence of damage, disturbance, and vandalism is within this burial.

The incomplete remains are of an adult male. Bones present are the cranium (1); mandible (1); right clavicle (3); sacrum (3); right scapula (3); left (3) and right (2) ilia; left ischium (2); left patella (2); first two cervical vertebrae; three additional cervical vertebrae; five lumbar vertebrae; proximal epiphysis (3) and remainder (2) of the left humerus; epiphyses (2) and proximal (2), middle (1), and distal (1) thirds of the right humerus; left radius (3) minus the proximal epiphysis, right radius (2); left ulna (3); right ulna (1); proximal epiphysis (3) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left femur; epiphyses (3) and proximal (1), middle (1), and distal (2) thirds of the right femur; both tibiae (2) and fibulae (2); right hand navicular; both lunates; both triquetrals; left greater multangular; both lesser multangulars; right capitate; right hamate; right first metacarpal; right third and fourth metacarpals; left calcaneus; and right talus.

All permanent teeth are present, in occlusion, except the maxillary left central incisor and mandibular first molars (lost antemortem). The mandibular left canine was removed for histological examination.

Carious lesions are on the occlusal surfaces (Figure 93) of the maxillary right third molar, maxillary left second molar, both maxillary first molars, and mandibular left second molar.

Preservation of the remains corresponds to weathering stage 3.

The extent of occlusal dental attrition and cranial suture closure suggest an age at death of 25 to 35 years. Skeletal robusticity suggests male sex.



FIGURE 92.—Peg-shaped third molars, burial 593.

Maximum length of the fibula is 36.7 cm, suggesting a living stature of about 170.1 cm (5 ft 7 in).

BURIAL 595.—FN: A coffin outline, nails, and wood were in association with this burial, and two porcelain buttons were recovered from the region of the right and left lower arm bones.

The incomplete remains are of an adult male. Bones present are the cranium (2); mandible (2); one scapula, side undetermined (3); left ilium (3); all cervical vertebrae; proximal epiphyses (3) and middle thirds (3) of the left humerus; left radius (3); left ulna (3); proximal epiphysis (2), proximal third (2), and remainder (3) of the left femur; diaphysis (3) of the right femur; proximal (3), middle (2), and distal (3) thirds and distal epiphysis (3) of the left tibia; proximal (3) and middle thirds (3) and distal epiphysis (3) of the right tibia; left triquetral; one metacarpal, side and digit undetermined; both calcanei; both tali; and one foot navicular, side and digit undetermined.

Permanent teeth present, in occlusion, from the maxillae are the second molars, left second premolar (damaged), first premolars (both damaged), right canine, left incisors, and right lateral incisor, and from the mandible all teeth except the right third molar (lost antemortem). The mandibular left canine and mandibular incisors were damaged. Permanent maxillary teeth lost antemortem were the right third molar, first molars, right second premolar, and left canine.

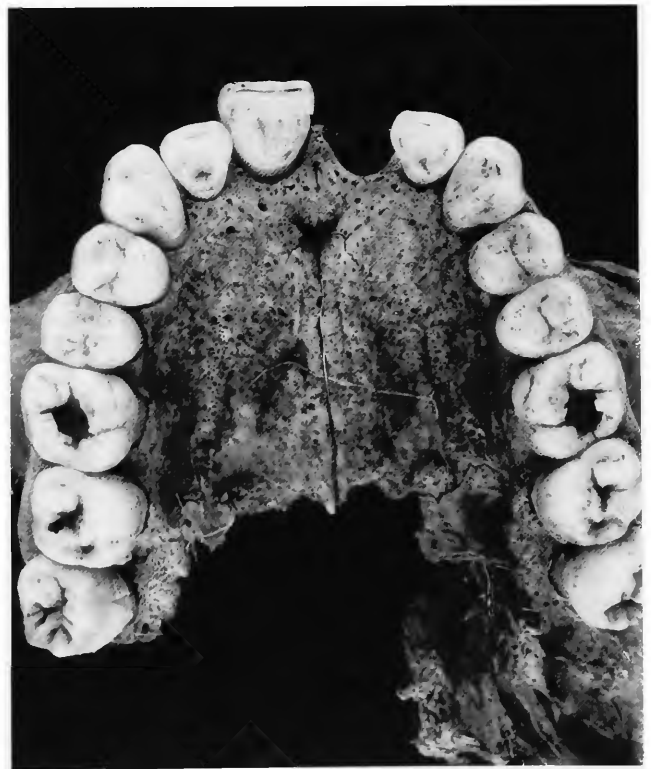


FIGURE 93.—Carious lesions on occlusal surfaces of maxillary teeth, burial 594.

One carious lesion is on the occlusal surface of the mandibular left second molar.

Preservation of the remains corresponds to weathering stage 3.

Arthritic change, cranial suture closure, and dental wear suggest an age at death of 45 to 60 years. General skeletal morphology suggests male sex.

Estimated femur length is 48.5 cm, suggesting a living stature of about 176.8 cm (5 ft 9.6 in).

Pathological changes are limited to osteophytic bridging and porosity between two lower cervical vertebrae (right side only involved) and slight arthritic lipping on the tali. Alveolar resorption is present. A slight expression of mandibular torus was noted.

BURIAL 596.—FN: Rickrack attached to fabric that was attached to the wood of the coffin followed the coffin's perimeter. Other artifacts recovered were plain and decorative nails; pins from the cranial region; fragments of wood; copper clasps, probably from hooks and eyes, from the region of the vertebrae; a gold ring from the eastern side of the vertebrae; and pins and leather shoe fragments from the region of the feet.

The very fragmentary remains are of an adult. Bones present are the frontal (3); both parietals (3); occipital (3); both temporals (2); left zygomatic (3); right scapula (3); both acetabula (3) of the pelvis; left patella (3); first two cervical vertebrae and one other cervical vertebra; distal epiphysis (2) and remainder (3) of the left femur; proximal epiphysis (2) and proximal (3), middle (2), and distal (3) thirds of the right femur; epiphyses (2) and diaphyses (3) of the tibiae; three metacarpals of undetermined side and digit; both calcanei; both tali; left navicular; and one metatarsal, side and digit undetermined.

No teeth were present, but field notes suggest they were lost antemortem.

Preservation of the remains corresponds to weathering stage 4. White staining is on the temporals. Copper staining is visible on several vertebrae fragments and a metacarpal.

The extent of cranial suture closure and extent of skeletal degenerative changes suggest an age at death of 30 to 55 years. The size of the mastoids and general gracility of the bones suggest female sex.

Slight enthesophyte formation was noted on the dens of the second vertebra. Cranial sutures around bregma appear to be fused endocranially but open ectocranially.

BURIAL 597.—FN: Nails were the only associated artifacts.

The incomplete remains are of an adult female. Bones present are the frontal (3); both parietals (1); occipital (2); both temporals (2); right clavicle (2); both scapulae (3); left (3) and right (2) ilia; both patellae (2); first two cervical vertebrae; three other cervical vertebrae; rib fragments; proximal epiphysis (2) of the left humerus; proximal epiphysis (2) and proximal third (2) of the right humerus; proximal epiphysis (3) and remainder (2) of the left femur; distal epiphysis (3), distal third (3), and remainder (2) of the right tibia; proximal (3), middle (2), and distal (3) thirds of the left fibula; diaphysis of the right fibula (3); two metacarpals, side and digits undetermined; right calcaneus; both tali; left cuboid; and right first metatarsal.

The permanent mandibular left canine is present, in occlusion.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the exposed cortex of the long bones.

Arthritic change and osteoporosity suggest an age at death of 40 to 55 years, however, the almost complete lack of cranial suture closure suggests a much younger age. The gracility of the skeleton suggests female sex.

Arthritic change is visible in temporal fossae (slight amount of lipping); lipping and porosity of the lower half of the right humeral head; enthesophytes on the posterior surface of both femora; and osteophyte formation on the right femoral head, around and above the fovea capitis. The bones in general are light in weight, suggesting osteoporosis.

BURIAL 598.—FN: Nails and wood were the only artifacts in association with this burial.

Present are several very fragmentary cranial bones from an infant. Field notes indicate the coffin was 42 cm long (16.5 in), suggesting the burial was of a late-term fetus or small newborn. Preservation of the remains corresponds to weathering stage 4.

BURIAL 599.—FN: A coffin outline, plain and decorative nails, and fragments of safety pins, one in the region of the cervical and the other at the waist, were the only associated artifacts.

The relatively well-preserved cranial and postcranial remains are of a child. Bones present are the frontal (2); other bones of the cranial vault (1); both zygomatrics (1); left maxilla (2); mandible (1); right clavicle (3); sacrum (3); both ilia (1); first two cervical vertebrae; three other cervical vertebrae; four thoracic vertebrae; one lumbar vertebra; one right first rib; three left and two right other ribs; proximal (2), middle (1), and distal (2) thirds of the humeri and radii; proximal epiphysis (2) and proximal (1) and middle (2) thirds of the left ulna; proximal (2), middle (1), and distal (3) thirds of the right ulna; both femora (1); left tibia (1); diaphysis (1) of the right tibia; left fibula (1) minus the proximal epiphysis; right fibula (1); both calcanei; both tali; right cuboid; right first cuneiform; right first metatarsal; and two left metatarsals, digits undetermined.

Deciduous teeth present, in occlusion, are the right second molars, mandibular first molars, and canines.

Permanent teeth present in occlusion are the first molars, central incisors, and mandibular lateral incisors. Those not in occlusion are the second molars, premolars, left canines, right mandibular canine, and maxillary lateral incisors.

Carious lesions in the deciduous dentition are on the interproximal surfaces of the maxillary right second molar (two lesions), maxillary canines, mandibular left first molar (two lesions), and mandibular canines.

The permanent maxillary right first molar has a carious lesion on the occlusal surface.

Enamel defects consist of diffuse-boundary hypocalcification (Figure 94) on the maxillary right second molar, maxillary canines, mandibular second molars, mandibular first molars, and mandibular canines.

Preservation of the remains corresponds to weathering stage 2. Green staining is on the cervical vertebrae.

Dental development and long-bone length suggest an age at death of 7 to 8 years.

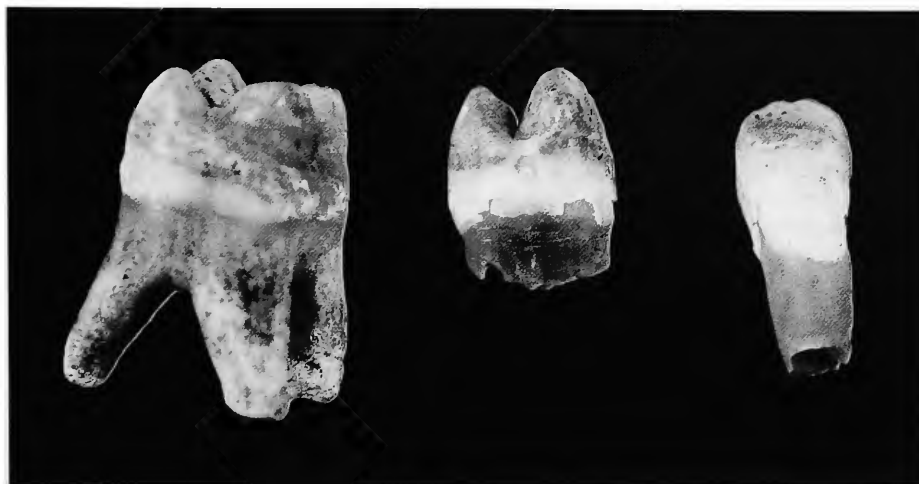


FIGURE 94.—Hypocalcification defects, burial 599.

BURIAL 600.—FN: Only a coffin outline was associated with this burial. Grave size suggests the burial was of an older child.

BURIAL 601.—FN: A coffin outline, nails, white metal decorative nails and plates, wood, and copper escutcheons were in association with this burial.

Present are deciduous tooth fragments from an infant. The state of development of an unidentifiable molar fragment suggests an age at death of 0.5 to 1.5 years.

BURIAL 602.—FN: Plain and white metal decorative nails were the only artifacts associated with this burial.

Present are the petrous portions of the temporals and deciduous tooth fragments of an infant. The only recognizable tooth is a deciduous maxillary right first molar, not in occlusion.

Preservation of the remains corresponds to weathering stage 3.

The stage of tooth development and the size of the grave suggest an age at death of about 6 months.

BURIAL 603.—FN: A coffin outline, nails, and tacks were in association with this burial. Red paint was along portions of the coffin's perimeter. No other artifacts were recovered.

No human remains were recovered, but the grave size suggests the burial was of a young infant.

BURIAL 604.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

Present are both petrous portions of the temporals (2) and the following deciduous teeth, not in occlusion, of an infant: the molars, maxillary right canine, maxillary right lateral incisor, mandibular right canine, and mandibular left incisors.

Preservation of the remains corresponds to weathering stage 4.

Dental development suggests an age at death of 0.8 to 1 year.

BURIAL 605.—FN: Only a grave outline remained. There was no evidence of a coffin outline, nails, or human remains. No human remains were recovered.

BURIAL 606.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

No human remains were recovered. The size of the grave suggests the burial was of an older child.

BURIAL 607.—FN: A coffin outline, wood, and plain and ornamental nails were associated with this burial. No other artifacts were present.

The occipital (2) of a child is present.

Deciduous teeth present, in occlusion, are the maxillary second molars, maxillary right first molar, maxillary right canine, and mandibular left second molar.

Permanent teeth present but not in occlusion are all first molars, maxillary left central incisor, and mandibular left lateral incisor.

One enamel defect of linear horizontal pits is on the permanent maxillary right first molar (3.8 mm).

Preservation of the remains corresponds to weathering stage 5. Black staining is on the cranium fragments and teeth.

Dental formation suggests an age at death of 2.5 to 3 years.

BURIAL 608.—FN: Wood fragments and plain and decorative nails were in association with this burial. No other artifacts were recovered.

Present are the very fragmentary remains of the middle third of the left femur (3) and mandible (3) of a child.

Deciduous teeth present, in occlusion, are the mandibular first molars and mandibular left second molar.

Permanent teeth present in occlusion are the mandibular first molars and mandibular incisors. Those not in occlusion are the mandibular premolars and mandibular canines.

Cariou lesions are on the interproximal surfaces of the deciduous mandibular left molars and the permanent mandibular left first molar.

Preservation of the remains corresponds to weathering stage 5. Black staining is on the remains.

Dental development suggests an age at death of about 8 years.

BURIAL 609.—FN: A coffin outline, wooden fragments of the coffin floor, and nails were in association with this burial. No

other artifacts were present. A mat of light-brown hair, about 48 mm long, was also found.

Present are both temporals (2) and teeth of a child.

Deciduous teeth present in occlusion are the maxillary first molars, mandibular right first molar, and mandibular right incisors. Those not in occlusion are the second molars, maxillary right canine, and mandibular canines.

Permanent teeth present, not in occlusion, from the maxillae are the first molars, canines, and incisors, and from the mandible the left first molar and left incisors.

Cariou lesions are on the occlusal surfaces of the deciduous maxillary first molars.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

Dental development suggests an age at death of about 2 years.

It appears that the lower two-thirds of the crowns of the right deciduous lower incisors are fused.

BURIAL 610.—FN: Only a coffin outline, nails, and wood were in association with this burial.

Present are the petrous portions (3) of the temporals and the following deciduous teeth, not in occlusion, of an infant: from the maxillae the right second molar, left first molar, right canine, and right lateral incisor, and from the mandible the left second molar and right first molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

Dental development and lack of dental wear suggest an age at death of 0.8 to 1.5 years.

BURIAL 611.—FN: Nails, fabric, and two copper coins were associated with this burial. One coin, wrapped in fabric, was found on the east side of the cranium, the other on the west side. One coin is dated to 1847 (Beynon, 1989:155).

The incomplete remains are of a child. Bones present are the temporals (2), cranium fragments, first cervical vertebra, other vertebrae fragments, right first rib, left and right second ribs, and two long-bone diaphyses (femur or tibia).

All deciduous teeth are present, in occlusion, except the second molars (not in occlusion) and maxillary left lateral incisor.

Permanent teeth present but not in occlusion are the first molars, maxillary right lateral incisor, maxillary central incisors, mandibular canines, and mandibular right incisors.

None of the deciduous teeth show defects or carious lesions. All of the forming permanent teeth show hypoplastic defects, ranging from a band to large areas of malformed enamel, that appear to have been formed from about 6 months of age to the time of death (distances from CEJ not available). These consist of linear horizontal grooves on the mandibular left first molar; linear horizontal pits on the maxillary first molars, maxillary left central incisor, mandibular right canine, and mandibular right central incisor; nonlinear arrays of pits on the maxillary right central incisor; and single pits on the mandibular left canine.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

Dental development suggests an age at death of 1.5 to 2 years.

BURIAL 612.—FN: Nails were the only associated artifacts.

The fragmentary remains are of a child. Bones present are the frontal (3), occipital (3), both temporals (3), both maxillae (3), first and second cervical vertebrae and two other cervical vertebrae, distal epiphyses (3) of the left humerus and the radius, proximal epiphysis of the left ulna (3), diaphysis of the left femur (2), distal epiphysis (3) and diaphysis (2) of the right femur, and diaphyses (3) of the tibiae and fibulae.

All deciduous maxillary teeth are present, in occlusion, except the left central incisor.

Permanent teeth present in occlusion are the first molars. Those not in occlusion are, from the maxillae, the right second molar, right second premolar, first premolars, canines, incisors, and, from the mandible, the second molars.

Enamel defects in permanent teeth consist of linear horizontal grooves on the maxillary left (two defects, 2.1 mm, 4.0 mm) and right (two defects, 3.9 mm, 1.9 mm) first molars and mandibular left (1.9 mm) and right (2.4 mm) first molars.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the cranium fragments and long bones.

Dental development suggests an age at death of about 6.4 years.

Moderate expression of Carabelli's cusp is on the maxillary first molars.

BURIAL 613.—FN: A coffin outline, nails, and one straight pin with hair, recovered from the top of the cranium, were the only artifacts associated with this burial.

During skeletal analysis, an earring (Figure 95) was discovered attached to a small mass of desiccated soft tissue and brown hair. The earring is hoop-shaped, about 13 mm in diameter, 1.2 mm thick, and fastens by means of a wire attached to a hinge that hooks into the other side of the ring. The metal is copper-colored and shows some copper corrosion, but protected areas of the ring



FIGURE 95.—Earring associated with desiccated soft tissue, burial 613.

show a gold or brass tone. It appears that the earring was either gold plated or brass.

The fragmentary remains are of a child. Bones present are the frontal (2); both parietals (2); occipital (1); left (1) and right (2) temporals; left maxilla (3); right palatine (2); right ilium (3); middle and distal (2) thirds of the right femur; and proximal (3), middle (2), and distal (3) thirds of the tibiae.

Deciduous teeth present, in occlusion, are the second molars, right first molars, maxillary canines, maxillary left central incisor, and mandibular right first molar.

Permanent teeth present in occlusion are the first molars. Those not in occlusion are the second molars, first premolars, incisors, maxillary second right premolar, maxillary right canine, and mandibular canines.

Carious lesions in the deciduous dentition are on the occlusal surface of the mandibular left second molar and on the interproximal surfaces of, in maxillary teeth, the second molars, right first molar, left canine, left central incisor, and, in mandibular teeth, the right first molar.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the endocranial surface of the occipital on the right side. Black staining is also present.

Dental development suggests an age at death of 6 to 7 years. The presence of the earring in this burial suggests that the child was female.

A tuberculum dentale is on the right lateral maxillary incisor. The maxillary second molars are very narrow and elongated.

BURIAL 614.—There are no field notes for this burial; no human remains were recovered.

BURIAL 615.—There are no field notes for this burial; no human remains were recovered.

BURIAL 616.—FN: This burial had been vandalized. A coffin outline, nails, a copper pin, and a porcelain button were present.

The fragmentary remains are of an adolescent. Bones present are the frontal (3); left parietal (3); occipital (3); left (2) and right (3) temporals; both maxillae (3); mandible (3); left clavicle (3); left scapula (2); left ilium (2); left pubis (3); right patella (3) six cervical vertebrae; one thoracic vertebra; rib fragments; proximal epiphysis (2); proximal (2), middle (3), and distal (2) thirds of the left humerus; distal epiphysis (3) and diaphysis (3) of the right humerus; diaphysis (2) of the left radius; proximal (3), middle (2), and distal (3) thirds of the right radius; proximal epiphysis (3) and diaphysis (2) of the left ulna; proximal (3), middle (2), and distal (3) thirds of the right ulna; left femur (2); proximal (3), middle (2), and distal (3) thirds and distal epiphysis (2) of the right femur; proximal epiphysis (2) and proximal (3), middle (2), and distal (2) thirds and distal epiphysis (3) of the left tibia; diaphysis (3) of the right tibia; diaphysis (3) of the left fibula; distal epiphysis (3) and diaphysis (3) of the right fibula; right hand navicular; right capitate; left second and third metacarpals; three other right metacarpals, digits undetermined; both calcanei; both tali; right cuboid; right foot navicular; right first and second metatarsals; and two distal phalanges.

All permanent teeth are present, in occlusion, except the third molars, which are present but are not in occlusion.

A carious lesion is on the interproximal surface of the maxillary left first molar.

Enamel defects consist of linear horizontal grooves on the maxillary left (two defects, 0.96 mm, 2.2 mm) and right (two defects, 0.9 mm, 1.7 mm) first molars and linear horizontal pits on these same teeth (one defect each, 4.1 mm and 4.6 mm, respectively).

Preservation of the remains corresponds to weathering stage 4. Purple staining is on some cranium fragments.

Dental formation and epiphyseal closure suggest an age at death of 14.5 to 15 years.

BURIAL 617.—FN: A coffin outline and nails were in association with this burial. A pair of earrings was recovered from the temporal regions, and metal wire, probably from a bonnet, was found in the cranial region.

The fragmentary remains are of a child. Bones present are the frontal (3); left (2) and right (3) parietals; occipital (2); both temporals (2); right zygomatic (3); right maxilla (3); mandible (2); right clavicle (2); four cervical vertebrae; four thoracic vertebrae; five right ribs; and proximal (3), middle (2), and distal (3) thirds of the left femur.

Deciduous teeth present, in occlusion, are the maxillary second molars, maxillary right canine, mandibular left molars, and mandibular canines.

Permanent teeth present, in occlusion, are the first molars and incisors. Those not in occlusion are the second molars, premolars, and canines.

Carious lesions in deciduous teeth are on the occlusal surfaces of the mandibular left molars, interproximal surfaces of the maxillary left second molar and maxillary right canine, and cervical area of the mandibular left canine.

A carious lesion is on the interproximal surface of the permanent maxillary right first molar.

Preservation of the remains corresponds to weathering stage 4. Green staining, apparently copper, is on a cranial fragment. Black staining is on the teeth, mandible, and femur.

Dental development suggests an age at death of 8 to 9 years. The presence of the earrings suggests female sex.

The only pathological condition noted was new bone formation on the visceral surface of a right rib.

BURIAL 618.—FN: Only a coffin outline, nails, and tacks were in association with this burial.

Present are both temporals (3) of an infant. No teeth were found.

Preservation of the temporals corresponds to weathering stage 5, with some black staining present.

BURIAL 619.—There are no field notes for this burial; no human remains were recovered.

BURIAL 620.—FN: Only a coffin outline and nails were in association with this burial.

Present are the cranial and postcranial remains of an adult, probably male. Most long bones are moderately well preserved, with some cracking and exfoliation of the surface. The cranium is warped and shows postmortem breakage. Bones present are the calvarium (2); right zygomatic (2); maxillae (2); left (1) and

right (2) palatines; mandible (2); both clavicles (2); manubrium (2); both scapulae (2); both ilia (2); both ischia (2); right pubis (2); both patellae (2); first two cervical vertebrae and four other cervical vertebrae; seven thoracic vertebrae; two lumbar vertebrae; first two ribs; six left and five right ribs; middle third (1) and remainder (2) of the left humerus; right humerus (2); proximal epiphysis (2) and proximal (1) and middle (3) thirds of the left radius; proximal epiphysis (3) and proximal (3), middle (2), and distal (3) thirds of the right radius; proximal epiphysis (1) and proximal (1) and middle thirds (3) of the left ulna; proximal epiphysis (3) and proximal (2), middle (3), and distal (2) thirds and distal epiphysis (3) of the right ulna; epiphyses (2) and diaphysis (1) of the left femur; right femur (2); middle third (1) and remainder (2) of the left tibia; right tibia (2); epiphyses (2) and diaphysis (1) of the left fibula; right fibula (2); both calcanei; both tali; both cuboids; left second cuneiform; right third cuneiform; right foot navicular; all metatarsals; and nine proximal, one middle, and two distal foot phalanges.

Permanent teeth present, in occlusion, are all maxillary teeth except the left first molar, lost antemortem, and the left lateral incisor, and all mandibular teeth except the third molars, right second molar, and first molars, all lost antemortem.

Carious lesions are on the occlusal surfaces of the maxillary left third molar and mandibular left second molar and the interproximal surface of the maxillary left second molar.

Enamel defects consist of linear horizontal grooves in the maxillary dentition on the right first premolar (2.3 mm), right canine (7.2 mm), and right central incisor (4.6 mm), and in the mandibular dentition on the right first premolar (3.0 mm), left (three defects, 6.2 mm, 8.6 mm, 4.6 mm) and right (5.9 mm) canines, left (4.4 mm) and right (6.1 mm) lateral incisors, and left (two defects, 4.4 mm, 2.6 mm) and right (4.3 mm) central incisors.

Preservation of the remains corresponds to weathering stage 3.

The age is somewhat problematical: significant cranial suture closure is visible on the cranium, but dental wear is slight and no arthritic change or osteophyte formation on the vertebrae was noted. The individual was probably 28 to 42 years of age. The large mastoids, lack of septal aperture, and size of the femoral head (47 mm) suggest male sex.

Maximum left femur length is 45.5 cm, suggesting a living stature of about 169.7 cm (5 ft 6.8 in).

Pathological conditions noted were enthesopathies on the right humerus (teres major attachment), right clavicle (trapezoid ligament), and in the tuberosities of both ulnae (brachialis attachment). These suggest moderately heavy physical activity involving the arms. A radiograph of the left tibia revealed no lines of increased density.

Dental health was generally poor. Heavy calculus is on the buccal surface of the right maxillary dentition (especially on the first molar) and on both surfaces of the mandibular dentition. The entire area of the right maxilla shows alveolar resorption and the formation of porous bone, indicative of periodontal disease. The right maxillary first premolar is rotated mesially.

A button (Figure 96), probably made of bone, is also present. The button is 15.1 mm in diameter and has five holes: a 2.7 mm

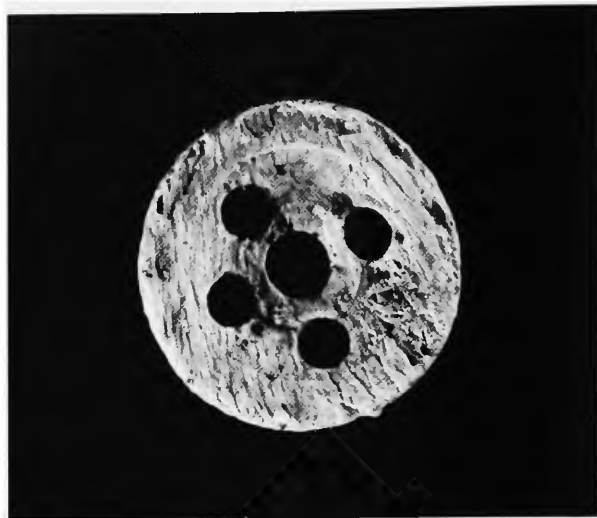


FIGURE 96.—Button, burial 620.

perforation in the center surrounded by four holes, each about 2.3 mm in diameter. The holes are not evenly spaced, suggesting the button was not machine made. A thin line was incised about 2 mm from the outer edge of the button.

BURIAL 621.—FN: The southern portion of the grave had been removed by a backhoe. The only artifacts present were nails.

Present is what appears to be a sternal segment from a child; its preservation corresponds to weathering stage 3. The size of the fragment and its lack of fusion suggest an age at death of 5 to 10 years.

BURIAL 622.—FN: Associated artifacts were a coffin outline, nails, wood, porcelain buttons, and shell buttons.

Present are the moderately well-preserved remains of an adult male. Bones present are the cranium (2); mandible (1); both clavicles (2); sacrum (3); both scapulae (2); left (3) and right (2) ilia; right ischium (3); right pubis (2); right patella (2); first two and three other cervical vertebrae; six thoracic vertebrae; four lumbar vertebrae; both first ribs; two left and five right other ribs; left humerus (2); proximal third (3) and remainder (2) of the right humerus; proximal (3), middle (2), and distal (2) thirds of the left radius; epiphyses (2) and diaphysis (1) of the right radius; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the left ulna; distal epiphysis (2) and remainder (1) of the right ulna; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the left femur; epiphyses (2) and diaphysis (1) of the right femur; proximal epiphysis (3) and diaphysis (2) of the left tibia; proximal epiphysis (2) and diaphysis (2) of the right tibia; middle third (3) of the left fibula; proximal (3), middle (2), and distal (2) thirds of the right fibula; right hand navicular; right lunate; right greater and lesser multangulans; right capitate; right hamate; all right metacarpals; four proximal, five middle, and two distal hand phalanges; and left calcaneus.

All permanent teeth are present, in occlusion, except the maxillary right third and right first molars, mandibular left second molar, and mandibular first molars, all missing antemortem.

Many teeth are carious. Lesions are on the occlusal surface of the maxillary left first molar; interproximal surfaces of, in maxillary teeth, the right second molar, left first molar, premolars (right second premolar with two lesions), right lateral incisor, and, in mandibular teeth, the right third molar, right second molar (two lesions), and right second premolar; and cervical areas of the mandibular third molars and mandibular right second molar.

Enamel defects consist of linear horizontal grooves in the maxillary dentition on the left second molar (1.8 mm) and left first molar (1.4 mm) and in the mandibular dentition on the left first premolar (3.0 mm), left (two lesions, 4.6 mm, 3.0 mm) and right (two defects, 4.6 mm, 3.0 mm) lateral incisors, left (4.5 mm) and right (two lesions, 4.3 mm, 2.8 mm) central incisors, and nonlinear arrays of pits on the mandibular right (5.8 mm) and left (6.1 mm) canines.

Preservation of the remains corresponds to weathering stage 3.

Cranial suture closure and the auricular surface of the ilium suggest an age at death of 25 to 34 years. Skeletal robusticity suggests male sex.

Pathological conditions include circular, roughened defects (pits) in the inferior sternal surfaces of both clavicles (Figure 97) (attachment area for costoclavicular ligament) and on the anterior ulnae, as well as Schmorl's depressions in two of the lower thoracic vertebrae (both surfaces of one vertebra, only inferior surface of other). These defects suggest that the individual was habitually engaged in strenuous activity involving the upper limbs and back.

Dental health was generally poor. Alveolar resorption is present, and moderate calculus is visible on all teeth. Dental wear is slight to moderate.

Femur length is 45.6 cm, suggesting a living stature of about 169.9 cm (5 ft 6.8 in).

BURIAL 623.—FN: A coffin outline surrounded by a rough box, nails, a button in the right lower lumbar region, and a copper pin on the left side of the face were in association with this burial.

The fragmentary remains are of an adolescent. Bones present are the frontal (3); occipital (3); both maxillae (2); mandible (1); both clavicles (2); sacrum (2); both scapulae (3); both ilia (2); left (2) and right (1) patellae; two cervical vertebrae and other vertebrae fragments; rib fragments; both humeri; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the left radius; proximal epiphysis (2) and proximal (1), middle (2), and distal (2) thirds and distal epiphysis (3) of the left ulna; proximal epiphysis (2) and proximal (1), middle (2), and distal (3) thirds of the right ulna; left femur (1); epiphyses (1) and proximal (2), middle (1), and distal (2) thirds of the right femur; both tibiae (1); proximal (1), middle (2), and distal (2) thirds and distal epiphysis (1) of the left fibula; proximal (1), middle (1), and distal (2) thirds and distal epiphysis (1) of the right fibula; left hand navicular; left lunate; left triquetral; left pisiform; left greater and lesser multangulars; left capitate; left hamate; right second and third metacarpals; one proximal hand phalanx; both calcanei both tali; both cuboids; all cuneiforms; both foot naviculars; left metatarsals; and right fifth metatarsal.

All permanent teeth are present, in occlusion, except the third molars, which are not in occlusion.

Enamel defects consist of linear horizontal grooves on the maxillary left (2.9 mm) and right (3.2 mm) second molars.

Preservation of the remains corresponds to weathering stage 3.

Dental development and epiphyseal closure suggest an age at death of 13 to 14 years.

Pathological conditions were limited to what appeared to be active abnormal periosteal bone formation on the middle two-thirds of the medial surfaces of both femora. Calculus is on several of the teeth and is especially heavy on the lingual surface of the lower incisors. A radiograph of the right tibia showed no lines of increased density.

BURIAL 624.—FN: A coffin outline, wood, tacks, and plain and decorative nails were in association with this burial. Also recovered were fragments of window glass from the east side of the cranium, fragments of cloth, and porcelain and metal buttons found mostly in the region of the torso.

The remains are of an adult, probably male. Bones present are the frontal (1); both parietals (1); occipital (1); both temporals



FIGURE 97.—Defects of sternal clavicles, burial 622.

(2); left zygomatic (1); sacrum (3); both scapulae (2); right ilium (1); right ischium (1); right pubis (3); four lumbar vertebrae; rib fragments; both epiphyses (2), proximal (2), middle (1), and distal (1) thirds of the left humerus; distal third (1) and remainder (2) of the right humerus; proximal epiphysis (2) of the left radius; distal third (3) and remainder (2) of the right radius; proximal epiphysis (2) and proximal third (3) of the left ulna; proximal epiphysis (1) and proximal (1), middle (2), and distal (3) thirds of the right ulna; both femora (1); epiphyses (2) and proximal (1), middle (1), and distal (2) thirds of the right fibula; both calcanei; right talus; right cuboid; right first cuneiform; left second cuneiform; both third cuneiforms; right foot navicular; all metatarsals except the left third; and five proximal hand phalanges.

Permanent teeth present, in occlusion, are all maxillary teeth except the left second premolar (lost antemortem) and right first premolar (lost postmortem) and from the mandible the right third molar, second molars, left first premolar, canines, and right lateral incisor. The maxillary left first molar, mandibular right second molar, mandibular left first premolar, mandibular canines, and mandibular right lateral incisor are damaged.

Carious lesions are on the occlusal surface of the maxillary right third molar; interproximal surfaces, in the maxillary dentition, of the right first molar, left first premolar, right canine, lateral incisors (two lesions on each tooth), and left central incisor (two lesions); and large surfaces of the maxillary left first molar and mandibular right second molar. An alveolar abscess is on the maxillary left first molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on most of the postcranial region.

Cranial suture closure and dental wear suggest an age at death of 25 to 35 years. Skeletal robusticity suggests probable male sex.

Pathological conditions are limited to the left lower leg. Both the tibia and the fibula show generalized, extensive, irregular thickening of the diaphysis, with well-remodeled periosteal bone apposition and poorly defined cortex. No evidence of recent bone formation was noted. Both the talus and distal fibula are fused to the tibia, in correct anatomical position; trabeculae of the tibia and talus appear to be continuous. No evidence of fracture was noted. This probably represents trauma to the ankle area early in life, with resulting localized infection of the lower leg and probable destruction of the growth plate. Radiographs revealed poorly defined cortical bone on the tibia (Figure 98).

Calculus is on most teeth and is especially heavy on the buccal maxillary molars. No hypoplastic defects were noted.

Femur length is 42.6 cm, suggesting a living stature of about 162.7 cm (5 ft 4.1 in). Field notes list what appeared to be a glass viewing plate in the area of the face.

BURIAL 625.—FN: A coffin outline and nails were associated with this burial. No other artifacts were present.

The extremely fragmentary cranial remains are of an infant; preservation of the fragments corresponds to weathering stage 5.

The presence of a canine or molar fragment, showing at least coalescence of cusps, suggests that the infant was probably a newborn.

BURIAL 626.—FN: A coffin outline and nails were the only associated artifacts. The coffin was sized for a small child.

No human remains were recovered.

BURIAL 627.—FN: Nails were the only artifacts found in association with this burial.

The fragmentary petrous portion of the temporal of a fetus or infant is present; its preservation corresponds to weathering stage 5.

BURIAL 628.—FN: Tacks and nails were the only artifacts associated with this burial.

Several long-bone or rib fragments of an infant or young child are present. Preservation of the black-stained remains corresponds to weathering stage 5.

BURIAL 629.—FN: Nails, glass, and wood were the only associated artifacts. Brown hair was present.

The incomplete remains are of an adult female. Bones present are the calvarium (2); left (1) and right (2) zygomatic; both maxillae (2); both palatines (1); mandible (2); both clavicles (2); both scapulae (3); both ilia (2); both ischia (3); both patellae (2); all cervical vertebrae; nine thoracic vertebrae; five lumbar vertebrae; both first ribs; two left and three right other ribs; left humerus (2); distal epiphysis (3) and remainder (2) of the right humerus; proximal epiphysis (2) and proximal third (3) of the left ulna; femora (2); tibiae (2); distal epiphysis (2) and diaphysis (2) of the left fibula; and proximal epiphysis (2) and proximal (3) and middle (3) thirds of the right fibula.

Permanent teeth present, in occlusion, are the maxillary right canine and mandibular left lateral incisor. All other teeth were lost antemortem.

A carious lesion is on the interproximal surface of the maxillary right canine and on the root of the mandibular left lateral incisor.

Enamel defects consist of linear horizontal grooves on the maxillary right canine (two defects, 2.2 mm, 3.8 mm).

Preservation of the remains corresponds to weathering stage 4. Black staining is on the long bones, innomi-

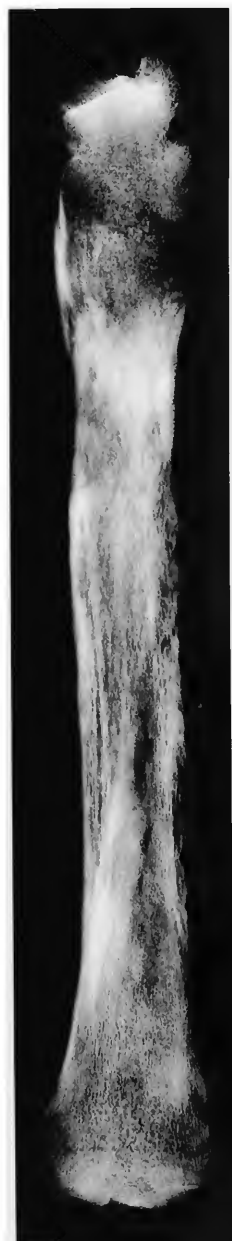


FIGURE 98.—Radiograph of well-remodeled abnormal thickening of left tibia, burial 624.

nates, cranium, and feet bones. A mat of dark brown hair is also present.

A bony spicule (Figure 99) is anterior to the left mandibular condyle at the point of attachment of the lateral pterygoid muscle. Osteophytes are on the cervical vertebrae. Other indications of arthritic changes are on the right sternal clavicle, glenoid fossa of the right scapula, distal tibiae, and both calcanei and tibiae. Three thoracic vertebrae display extreme porosity at the articular surfaces.

Three irregularly shaped nodules of apparent ossified soft tissue were found in the neck area, one within a transverse foramen of a cervical vertebra. The largest nodule is about 30×20 mm (Figure 100). The two smaller nodules are about 11 mm in diameter. Radiographs revealed highly variable density.

Maximum femur length is 44.6 cm, suggesting a living stature of about 164.2 cm (5 ft 4.7 in).

BURIAL 630.—FN: A coffin outline, plain and decorative nails, wood, and fabric fragments were in association with this burial.

Present are the left (2) and right (3) temporal fragments and teeth of a child. Deciduous teeth present, in occlusion, are the maxillary left molars and mandibular right molars. The deciduous maxillary right canine is present but is not in occlusion. Permanent teeth present, not in occlusion, are the maxillary left first molar, maxillary central incisors, and mandibular right first molar.

No carious lesions were noted.

Preservation of the remains corresponds to weathering stage 5.

The deciduous teeth, although erupted, showed no wear. Dental development suggests an age at death of 2.5 to 3 years.

BURIAL 631.—FN: A coffin outline, tacks, and plain and decorative nails were found in association with this burial, which was above burial 635.



FIGURE 99.—Spicule formation on left mandible, burial 629.

Present are the fragmentary occipital (3), both temporals (3), vertebrae, left first rib, and two left and four right other ribs of an infant.

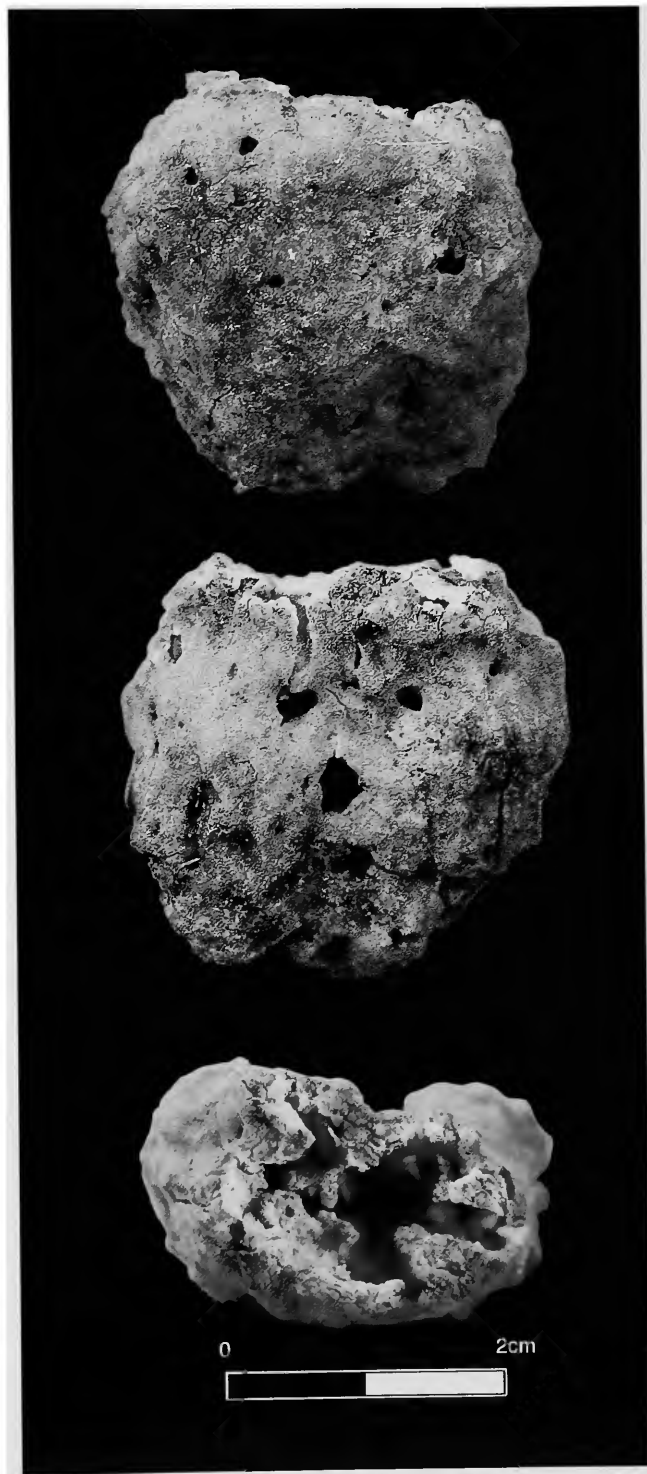


FIGURE 100.—Three views of one ossified soft tissue sample from the neck area, burial 629.

Preservation of the remains corresponds to weathering stage 4. Measurements of the cranial bones suggest a fetal age at death of 8.5 to 9 lunar months (newborn).

BURIAL 632.—FN: A coffin outline, nails, and wood were the only artifacts in association with this burial.

Bones present are the temporals (3) and other cranium fragments from a child.

Deciduous teeth present, in occlusion, are the maxillary right second molar, maxillary first molars, maxillary right central incisor, and mandibular second molars.

Permanent teeth present, not in occlusion, are the first molars, left canines, maxillary right incisors, and mandibular left lateral incisor.

Carious lesions are on the interproximal surfaces of the deciduous maxillary right first molar and maxillary right central incisor.

Preservation of the remains corresponds to weathering stage 5. Dental development suggests an age at death about 2 years.

BURIAL 633.—FN: A coffin outline and nails were found in association with this burial. No other artifacts were present.

The extremely fragmentary remains are of a child. Bones present are the calvarium (3), mandible (3), first and second cervical vertebrae, and one thoracic vertebra.

Deciduous teeth present, in occlusion, are the molars, left maxillary canine, and left maxillary lateral incisor.

Permanent teeth present, not in occlusion, are the first molars, right canines, left incisors, maxillary right first premolar, maxillary right central incisor, and mandibular right lateral incisor.

A carious lesion is on the interproximal surface of the deciduous mandibular left first molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

Dental development suggests an age at death of 2.2 to 2.8 years.

BURIAL 634.—FN: Coffin nails were the only associated artifacts.

No human remains were recovered. Grave size suggests that the burial was of a late-term fetus or newborn.

BURIAL 635.—FN: This burial was directly below burial 631. A coffin outline, wood, and nails were in association with the burial. Two white porcelain buttons were also recovered.

The fragmentary skeletal remains are of a child. Bones present are the frontal (2), both parietals (2), occipital (2), both temporals (1), both zygomatics (1), both maxillae (1), both palatines (1), mandible (2), left clavicle (3), sacrum (3), right scapula (3), both ilia (3), left ischium (2), six cervical vertebrae, all thoracic vertebrae, four lumbar vertebrae, right first rib, five left and nine right other ribs, middle third (2) of the left humerus, distal third (2) and distal epiphysis (2) of the right humerus, proximal (3) and middle (3) thirds of the right radius, proximal third (3) of the left ulna, proximal third (2) of the right ulna, proximal epiphyses (1) and diaphyses (2) of the femora, and two hand phalanges.

Deciduous teeth present, in occlusion, are the molars and canines.

Permanent teeth present in occlusion are the first molars and incisors. Those not in occlusion are the second molars, maxillary right premolars, and maxillary right canine.

Carious lesions are on the interproximal surfaces of the deciduous maxillary right first molar and mandibular left canine.

Preservation of the remains corresponds to weathering stage 4. Dental formation suggests an age at death of 7.4 to 8 years.

A combination of active and healing cribra orbitalia is visible in the left orbit; that in the right orbit is healed. No hypoplastic defects were noted. This individual has a full metopic suture.

BURIAL 636.—FN: Nails were the only associated artifacts.

No human remains were recovered. Grave size suggests the burial was of a late-term fetus or newborn.

BURIAL 637.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

A temporal fragment (2) and all deciduous teeth, not in occlusion, of an infant are present except the maxillary left first molar and mandibular right second molar.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

Dental development suggests an age at death of about 6 months.

BURIAL 638.—FN: Coffin nails and wood were the only artifacts found in association with this burial.

No human remains were recovered.

BURIAL 639.—FN: A coffin outline, nails, and a brass pin found on the western side of the cranium were in association with this burial.

The fragmentary skeletal remains are of a very gracile young adult female. Bones present are the frontal (3); both parietals (3); occipital (2); sacrum (3); left scapula (3); both ilia (2); left (2) and right (3) ischia; left patella (2); proximal epiphysis (3), proximal third (3), and remainder (2) of the left humerus; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the right humerus; proximal epiphysis (3) and proximal (2), middle (3), and distal (3) thirds of the left radius; proximal (3), middle (2), and distal (2) thirds of the right radius; proximal (2) and middle (3) thirds of the left ulna; proximal (2), middle (2), and distal (3) thirds of the right ulna; both femora (2) except the distal epiphyses; middle (3) and distal (2) thirds and distal epiphysis (2) of the left fibula; middle (3) and distal (3) thirds and distal epiphysis (2) of the right fibula; two metacarpals, side and digits undetermined; and all tarsals and metatarsals.

The permanent maxillary left third molar and maxillary right second premolar are present, in occlusion.

Preservation of the remains corresponds to weathering stage 3.

Suture closure and dental development and wear suggest an age at death of 17 to 24 years.

Estimated femur length is 45.0 cm, suggesting a living stature of 165.25 cm (5 ft 5 in).

The only pathological skeletal condition detected was an ovoid defect (Figure 101), measuring 13.9 × 7.1 mm and 6.5 mm deep, on the posterior surface of the distal right femur, medial to the midline. Radiographs (Figure 102) revealed a sclerotic margin.

BURIAL 640.—FN: A coffin outline and nails were found in association with this burial. No other artifacts were recovered.

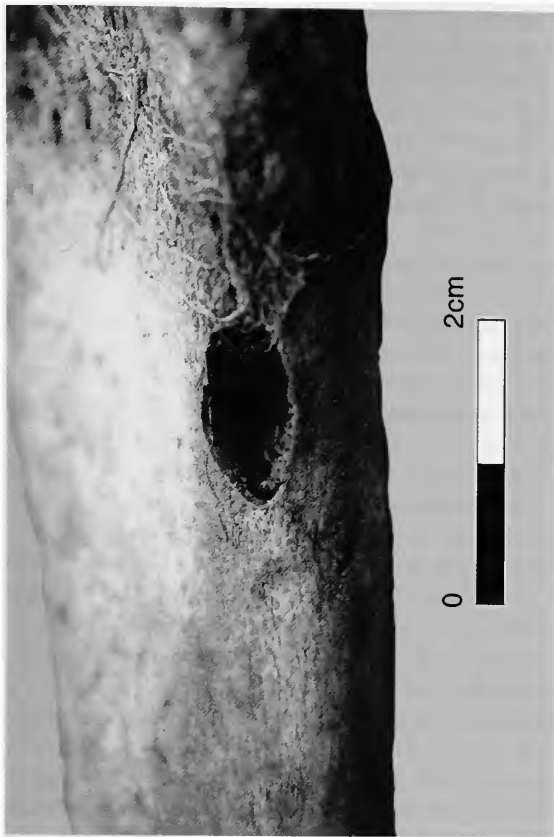


FIGURE 101.—Ovoid defect of distal right femur, burial 639.

Bones present are one cervical vertebra and one thoracic vertebra from an adult probably 25 to 55 years of age. Their preservation corresponds to weathering stage 3.

BURIAL 641.—FN: Nails and wood fragments were the only artifacts found in association with this burial.

The incomplete remains are of an adult, likely female. Bones present are the frontal (2); right parietal (3); occipital (2); both temporals (2); both maxillae (2); both palatines (1); mandible (2); left scapula (3); both ilia (3); right ischium (2); right patella (2); four cervical vertebrae; two thoracic vertebrae; two lumbar vertebrae; diaphysis (2) of the left humerus; proximal (3), middle (2), and distal (3) thirds of the right humerus; proximal (3) and middle (3) thirds of the left radius; proximal epiphysis (3) and proximal (3) and middle (3) thirds of the left ulna; proximal epiphysis (2) and proximal (2) and middle (3) thirds of the right ulna; epiphyses (2) and diaphyses (3) of the left femur; distal epiphysis (2) and remainder (1) of the right femur; proximal epiphysis (2) and remainder (3) of the left tibia; right tibia (2); distal third (3) and distal epiphysis (1) of the left fibula; distal epiphysis (1) of the right fibula; left calcaneus; both tali; and left cuboid.

Permanent teeth present, in occlusion, from the maxillae are the right premolars, both canines (left damaged), both lateral incisors, and left central incisor, and from the mandible the incisors



FIGURE 102.—Radiograph of ovoid defect of distal right femur, burial 639.

and left canine. All molars and left premolars and the mandibular right premolars were lost antemortem.

Carious lesions are on the interproximal surfaces of the maxillary right premolars, maxillary right canine (two lesions), mandibular left canine, mandibular right lateral incisor, and mandibular central incisors; large surfaces of the maxillary left canine and maxillary left lateral incisor; and cervical areas of the maxillary right first premolar and maxillary right canine. One alveolar abscess is associated with the mandibular left first premolar.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the vertebrae.

BURIAL 642.—FN: Coffin nails were the only associated artifacts.

Bones present are an adult-sized diaphysis (3) of the left humerus, distal third (2) of the right humerus, and right scapula (3).

Preservation of the remains corresponds to weathering stage 4. Black staining is on the long bones.

The glenoid is fully fused and shows no arthritic lipping, suggesting an age at death of about 15 to 45 years.

BURIAL 643.—FN: A partial coffin outline, nails, and wood were in association with this burial. Coffin size suggests the burial was of an infant.

No human remains were recovered.

BURIAL 644.—FN: Nails were the only artifacts found in association with this burial. Coffin size suggests the burial was of a newborn.

Only black-stained cranium fragments from an infant are present. Their preservation corresponds to weathering stage 5.

BURIAL 645.—FN: A coffin outline, wood, and nails were the only artifacts in association with this burial.

Present are the deciduous maxillary first molars and mandibular right first molar, not in occlusion, of an infant probably 0.5 to 1 year of age. Preservation of the remains corresponds to weathering stage 5. Black staining is on the teeth.

BURIAL 646.—FN: A coffin outline, wood, and nails were the only artifacts in association with this burial.

Present are the petrous portions of the temporals (3) and teeth of an infant. Deciduous teeth, not in occlusion, are all present except the left canines, maxillary left first molar, and mandibular left lateral incisor. The permanent mandibular right first molar, not in occlusion, is also present.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all remains.

Dental development suggests an age at death of 0.5 to 0.8 years.

BURIAL 647.—FN: Coffin nails were the only associated artifacts.

Present are the temporals (2) and proximal and middle thirds (2) of the right tibia of an infant.

Preservation of the remains corresponds to weathering stage 3. Black staining is on all remains.

The size of the bones suggests an age at death of late-term fetus or newborn.

BURIAL 648.—FN: A coffin outline, wood, and plain and decorative nails were in association with this burial. No other artifacts were recovered.

Present are several fragments of the cranial vault of a small infant.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 649.—FN: A coffin outline and nails were in association with this burial. Red paint was along segments of the coffin outline. Coffin size suggests the burial was of a newborn.

No human remains were recovered.

BURIAL 650.—FN: A coffin outline and nails were in association with this burial, and red paint was visible in sections of the coffin outline. No other artifacts were recovered.

Present are the fragmentary skeletal remains of an infant. Bones present are the frontal (3) and both temporals (3).

Deciduous teeth present, not in occlusion, are the canines, maxillary right molars, maxillary left second molar, maxillary right lateral incisor, and mandibular right second molar.

The permanent maxillary right first molar is present, not in occlusion.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the cranium and long bones.

Dental development suggests an age at death of about 1 year.

BURIAL 651.—FN: The majority of this burial had been destroyed by a backhoe, and only about 5 cm of one coffin end could be established. Nails were the only associated artifacts.

The petrous portion of a temporal (3) of an older-than-infant subadult is present.

Preservation of the remains corresponds to weathering stage 3. The bone has black stains.

BURIAL 652.—FN: Nails were the only artifacts found in association with this burial. If the grave outline is complete, it suggests the burial was of a small fetus.

No human remains were recovered.

BURIAL 653.—FN: A coffin outline and nails were in association with this burial. Red or pink paint was evident on sections of the coffin walls. No other artifacts were recovered.

The fragmentary remains are of a child. Adherent to a cranial fragment is a mass of medium-blond hair, about 20 mm long. Within the hair is what appears to be a copper-alloy straight pin, which shows green corrosion. Bones present are the occipital (3), both temporals (2), both zygomatics (2), both maxillae (3), and mandible (3).

All deciduous teeth are present, in occlusion, except the maxillary left canine and mandibular right incisors.

Permanent teeth present, not in occlusion, are the first molars, central incisors, maxillary left first premolar, mandibular right first premolar, and mandibular lateral incisors.

Carious lesions are on the occlusal surfaces of the deciduous maxillary first molars (two lesions on each tooth).

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

Dental formation suggests an age at death of about 2.3 years.

The cusp patterns on the permanent molars are quite complex.

BURIAL 654.—FN: A coffin outline and nails were the only associated artifacts.

Present are the occipital (2), temporals (3), and other cranial-bone fragments and teeth of an infant.

Deciduous teeth present, not in occlusion, are the maxillary right molars, mandibular second molars, mandibular right first molar, and mandibular right canine. The enamel of all deciduous second molars present has an irregular, pitted surface, suggesting systemic stress from birth until the time of death.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the remains.

Dental development suggests an age at death of 0.8 to 1 year.

BURIAL 655.—FN: This burial had been disturbed, and no grave or coffin outline could be established. One lithic and a small glass fragment were the only artifacts found with the skeletal remains.

The long-bone fragments are of a likely adult male. Bones present are the left (3) and right (2) ilia; right (3) ischium; proximal (3), middle (2), and distal (3) thirds of the left humerus; middle (3) and distal (2) thirds and distal epiphysis (3) of the right humerus; proximal (2) and middle (3) thirds of the right ulna;

proximal epiphysis (3) and proximal (3), middle (2), and distal (2) thirds of the left femur; diaphysis (2) of the right femur; distal epiphysis (2) of the left tibia; and proximal (3), middle (2), and distal (3) thirds and distal epiphysis (3) of the right tibia.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all of the fragments.

Skeletal maturation suggests an age at death of 25 to 65 years. Skeletal robusticity suggests male sex.

BURIAL 656.—FN: A coffin outline, wood, and nails were the only artifacts found in association with this burial.

The fragmentary skeletal remains are of a child. With the skeletal remains are blond to light brown hair and two copper-alloy straight pins with rounded heads. Insect puparia are on the occlusal surfaces of both unerupted maxillary first molars and the opposing surface of the right molar. Bones present are the frontal (3), occipital (3), both temporals (3), right zygomatic (2), both maxillae (3), both ilia (3), rib fragments, all cervical vertebrae, proximal epiphyses of the femora (3), proximal (3) and distal (3) thirds of the left tibia, diaphysis (3) of the right tibia, and middle third (3) of the right fibula.

Deciduous teeth present, in occlusion, are all maxillary teeth except the second molars (present but not in occlusion) and, from the mandible, the first molars, left canine, lateral incisors, and left central incisor. The mandibular second molars are present but are not in occlusion.

Permanent teeth present, not in occlusion, are the first molars, canines, left central incisors, mandibular lateral incisors, and mandibular right central incisor.

Carious lesions are in the deciduous dentition on the interproximal surfaces of the left lateral incisors, left central incisors (two lesions in each tooth), maxillary right central incisor (two lesions), and mandibular right lateral incisor.

In the deciduous teeth, discrete-boundary hypocalcification is in the maxillary dentition on the left (2.6 mm) and right (2.2 mm) first molars, left (1.2 mm) and right (1.2 mm) lateral incisors, and left (1.2 mm) and right (1.0 mm) central incisors. Diffuse-boundary hypocalcification is on the maxillary canines and mandibular second molars.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the dentition, red staining is on the long bones, and green staining is on the cranium fragments.

Dental development suggests an age at death of 1.5 to 2 years.

The maxillary central incisors have moderate wear.

BURIAL 657.—FN: A coffin outline, nails, and straight pins were in association with this burial. One of the pins was recovered on the east side of the cranium and the others in the region of the sternum. Traces of pink paint were found along the foot of the coffin.

The fragmentary skeletal remains are of an infant. Bones present are the frontal (2); right parietal (2); occipital (2); both temporals (2); right maxilla (3); mandible (2); right clavicle (2); right scapula (2); all cervical vertebrae; nine thoracic vertebrae; two left and eight right ribs; proximal (3), middle (2), and distal (3) thirds of the right humerus and the right ulna; and distal epiphysis (3) of the right humerus.

Deciduous teeth present, not in occlusion, from the maxillae are the right second molar, left first molar, left lateral incisor, and right central incisor, and from the mandible all teeth.

The permanent mandibular right first molar is present but is not in occlusion.

Preservation of the remains corresponds to weathering stage 3. Green staining is on the vertebrae and occipital, and black staining is on the cranium fragments.

Dental development suggests an age at death of 4 to 5 months.

BURIAL 658.—FN: A coffin outline and nails were the only artifacts found in association with this burial.

The fragmentary skeletal remains are of a child. Bones present are the frontal (3), both parietals (2), occipital (2), right temporal (3), and both maxillae (3).

Deciduous teeth present, in occlusion, are the first molars, maxillary right incisors, maxillary left lateral incisor, mandibular canines, and mandibular left lateral incisor. The second molars are present but are not in occlusion.

Permanent teeth present, not in occlusion, are the first molars, canines, central incisors, and mandibular left lateral incisor.

Preservation of the remains corresponds to weathering stage 2. Black staining is on the occipitals and parietals.

One orbit (the other orbit is not present) shows large, cribra-form lesions (Figure 103), active at the time of death. No porotic hyperostosis was noted.

Dental development suggests an age at death of about 2 years.

BURIAL 659.—FN: A coffin outline and nails were the only associated artifacts. Coffin size suggests the burial was of an infant.

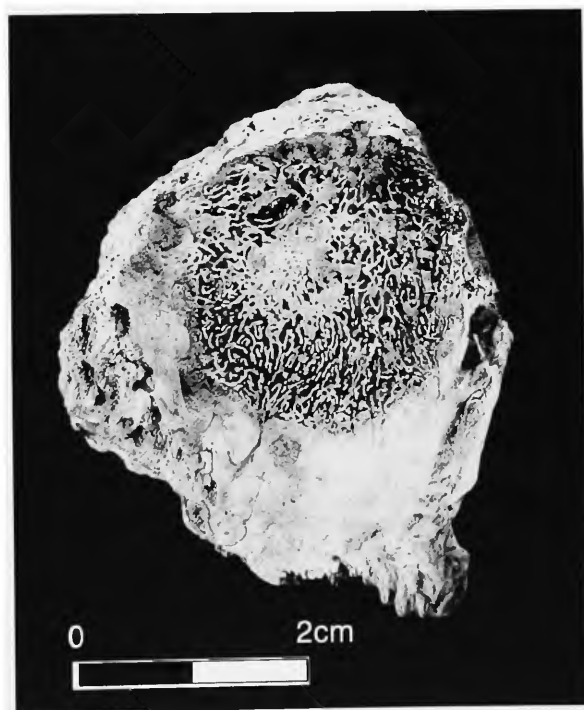


FIGURE 103.—Cribra orbitalia, burial 658.

No human remains were recovered.

BURIAL 660.—FN: A coffin outline and nails were the only associated artifacts.

Present is the petrous portion of a right temporal (2) of an infant or child less than 3 years of age.

BURIAL 661.—FN: A coffin outline and nails were the only associated artifacts. Grave size suggests the burial was of a fetus.

No human remains were recovered.

BURIAL 662.—FN: A backhoe had disturbed one-half of the grave. Only a partial coffin outline and nails remained.

No human remains were recovered.

BURIAL 663.—FN: A coffin outline, nails, and two copper straight pins recovered from the region of the mandible were in association with this burial.

The fragmentary skeletal remains are of a child. Bones present are the left parietal (3), occipital (3), right temporal (2), left maxilla (3), mandible (2), and long-bone fragments.

Deciduous teeth present, in occlusion, are the maxillary left second molar, maxillary right canine, mandibular second molars, mandibular left first molar, and mandibular left canine.

Permanent teeth present in occlusion are the maxillary left first molar and mandibular first molars. Those not in occlusion are the maxillary left second molar, maxillary left second premolar, and, from the mandible, the second molars, right canine, right premolars, right lateral incisor, and central incisors.

Cariou lesions in deciduous teeth are on the interproximal surfaces of the maxillary left second molar, maxillary right canine (two lesions), mandibular left first molar, mandibular second molars, and mandibular left canine, and on the cervical areas of the maxillary right canine and mandibular left canine.

Cariou lesions in permanent teeth are on the occlusal surfaces of the maxillary left first molar and mandibular first molars and the interproximal surfaces of the mandibular first molars.

Discrete-boundary hypocalcification is on the permanent mandibular left first molar.

Preservation of the remains corresponds to weathering stage 3. Copper staining is on the buccal surfaces of the deciduous mandibular left second molar and permanent mandibular left first molar. Black staining is on the mandible and teeth.

Dental development suggests an age at death of about 6 years.

BURIAL 664.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

Present are cranial-bone fragments and teeth of an infant. Deciduous teeth, not in occlusion, are the second molars, from the maxillae the first molars, right canine, and left lateral incisor, and from the mandible the first molar and left canine. The permanent mandibular left first molar is present but is not in occlusion.

Dental development suggests an age at death of 0.5 to 1 year.

BURIAL 665.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. Grave size suggests the burial was of an older infant.

No human remains were recovered.

BURIAL 666.—FN: Nails were the only artifacts associated with this burial. The grave and coffin outlines could not be dis-

tinguished. The estimated size of the grave suggests the burial was of an older infant.

No human remains were recovered.

BURIAL 667.—FN: A coffin outline, nails, and a copper straight pin were the only artifacts in association with this burial.

Present are cranial-bone fragments from an infant. Bones present are the parietals (2), occipital (2), sphenoid, and both temporals (2).

The size of the sphenoid suggests a fetal age at death of about 9.5 lunar months (newborn).

BURIAL 668.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. Coffin size suggests the burial was of an older infant.

No human remains were recovered.

BURIAL 669.—FN: A coffin outline was associated with this burial. Nails were the only artifacts recovered.

The skeletal remains are of an infant. Bones present are the occipital (3), both temporals (3), and five cervical vertebrae.

Deciduous teeth present but not in occlusion are the maxillary right lateral incisor, maxillary central incisors, and mandibular right molars.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the cranium fragments.

Dental formation suggests an age at death of 6 months.

BURIAL 670.—FN: A coffin outline, wood along the lower eastern coffin side, and nails were in association with this burial. No other artifacts were recovered. The size of the coffin suggests the burial was of a young child.

No human remains were recovered.

BURIAL 671.—FN: This burial had been vandalized. Found in association with it were plain and decorative nails, porcelain buttons, and metal buttons. Two of the metal buttons were covered in a brown fabric and two in a black fabric. Three colors of fabric were found in the burial: brown along the coffin sides, black in the arm region, and yellow near the legs.

The incomplete remains are of an adult of undetermined sex. Bones present are the mandible (2); acetabulum (3); proximal epiphysis (3) and proximal (3), middle (2), and distal (3) thirds and distal epiphysis (2) of the left femur; proximal epiphysis (3), distal epiphysis (2), and diaphysis (2) of the right femur; distal epiphysis (2) and remainder (3) of the left tibia; right tibia (2); proximal epiphysis (3) and proximal (3) and middle (3) thirds of a fibula; both calcanei; both tali; and one foot navicular.

Permanent teeth present, in occlusion, are the maxillary right central incisor and all mandibular teeth.

Interproximal carious lesions are on the mandibular left first and second molars.

Preservation of the remains corresponds to weathering stage 4. Black staining is on all bones.

Dental attrition suggests an age at death of 20 to 30 years.

BURIAL 672.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. The coffin was sized for a newborn.

Present is the petrous portion of the temporal (2) of an infant. Its preservation corresponds to weathering stage 3.

BURIAL 673.—FN: This burial had been disturbed by a backhoe, and what remained was a small section of the southern end. A partial coffin outline and nails were in the remaining portion.

No human remains were recovered.

BURIAL 674.—FN: A coffin outline and nails were in association with this burial. The northern end had been disturbed by a backhoe.

No human remains were recovered.

BURIAL 675.—FN: A coffin outline with traces of red paint were in association with this burial. Nails were the only artifacts recovered. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 676.—FN: A coffin outline was in association with this burial. Artifacts recovered include plain and decorative nails and escutcheons.

Present are the petrous portions (3) of the temporals and several unidentifiable bone fragments from an infant.

Preservation of the remains corresponds to weathering stage 4. Black stains are on the bones.

The size of the grave suggests the infant was a late-term fetus or very small newborn.

BURIAL 677.—FN: A coffin outline; wooden sections of the coffin walls, lid, and floor; and nails were in association with this burial. No other artifacts were present. The coffin was sized for a young child.

No human remains were recovered.

BURIAL 678.—FN: Plain and decorative nails and wood were in association with this burial. No other artifacts were recovered.

Bones present are the fragmentary cranium (3), first two cervical vertebrae, and a possible femur diaphysis fragment from a child.

Deciduous teeth present, in occlusion, are the maxillary first molars, maxillary central incisors, mandibular left first molar, and mandibular right incisors. The second molars are present but are not in occlusion.

Permanent teeth present but not in occlusion are the first molars, right lateral incisors, left central incisors, maxillary right canine, maxillary right central incisor, mandibular canines, and mandibular left lateral incisor.

Dental formation suggests an age at death of about 2 years.

Preservation of the remains corresponds to weathering stage 5.

BURIAL 679.—FN: Nails and wood were the only artifacts found in association with this burial.

Bones present are the petrous portions of both temporals (3) and other cranial-bone fragments from a child.

Deciduous teeth present in occlusion are the maxillary right first molar and maxillary left lateral incisor. Those not in occlusion are the canines and the maxillary second molars.

Preservation of the remains corresponds to weathering stage 3.

Dental development and wear suggest an age at death of 0.8 to 1.5 years.

BURIAL 680.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

Present are the occipital (3) and temporals (3) of an infant. The size of the basilar is consistent with that of a newborn.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the temporals.

BURIAL 681.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered. The size of the grave suggests the burial was of a newborn.

No human remains were recovered.

BURIAL 682.—FN: A coffin outline, nails, and a fabric fragment found at southern end of the coffin were in association with this burial. The coffin was sized for an older infant.

No human remains were recovered.

BURIAL 683.—FN: A coffin outline and nails were in association with this burial. A historic ceramic fragment was recovered from the grave fill. The size of the grave suggests the burial was of an older infant.

Present are two bone fragments, possibly originating from the petrous portion of the temporal of a subadult. Their preservation corresponds to weathering stage 2.

BURIAL 684.—FN: This burial was above burials 696 and 699. A coffin outline and plain and decorative nails were in association with it.

Present is the left temporal (2) and several other cranial-bone fragments from a small infant. Their preservation corresponds to weathering stage 2.

Based on comparative material from a newborn, the infant was either a late-term fetus or a small newborn.

BURIAL 685.—FN: A coffin outline and nails were in association with this burial. No other artifacts were present. The size of the coffin suggests the burial was of a small newborn.

No human remains were recovered.

BURIAL 686.—FN: A coffin outline and coffin nails were in association with this burial. No other artifacts were present.

The fragmentary skeletal remains are of a child. Bones present are the occipital (3), both temporals (3), both maxillae (3), mandible (3), and all cervical vertebrae.

Deciduous teeth present, in occlusion, are the molars, maxillary right canine, maxillary lateral incisors, and mandibular left central incisor.

All permanent teeth except the third molars and mandibular right first premolar are present but are not in occlusion.

Carious lesions in the deciduous dentition are on the occlusal surfaces of the maxillary right second molar (two lesions), maxillary right first molar, mandibular right second molar, and mandibular left first molar, and the interproximal surfaces of the maxillary left first molar and mandibular left second molar.

Preservation of the remains corresponds to weathering stage 5.

Dental development suggests an age at death of 4 to 5.5 years.

BURIAL 687.—FN: A coffin outline, nails, and wood were associated with this burial. No other artifacts were recovered.

The fragmentary skeletal remains are of a child. Bones present are the occipital (3), both temporals (3), both maxillae (3), mandible (3), one ilium fragment (3), five cervical vertebrae, distal epiphysis (3) of a femur, and proximal third (3) of a tibia.

The deciduous mandibular left second molar is present, in occlusion.

Permanent teeth present in occlusion are the second molars, first molars, right second premolars, canines, left lateral incisors, mandibular first premolars, and mandibular right lateral incisor. Those present but not in occlusion are the maxillary right third molar and mandibular left second premolar.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all the remains. Slight white staining, possibly mold, is on the ilium.

Dental development suggests an age at death of 10 to 12 years.

None of the teeth are carious or show hypoplastic defects. The incisors are very strongly shoveled, and buccal pits are on both first and both second mandibular molars.

BURIAL 688.—FN: A coffin outline, nails, and wood were in association with this burial. Other artifacts found include coffin fabric along a section of the coffin's northern end and lower eastern side, hatpins and small pins from the cranial region, and a button from the upper thoracic region.

The extremely fragmentary skeletal remains are of an adult. Bones present are the frontal (3), right parietal (2), occipital (3), left (3) and right (2) temporals, right zygomatic (2), left maxilla (3), an acetabulum (3), first two cervical vertebrae, and proximal epiphysis (3) and proximal (3) and middle (3) thirds of a tibia.

Permanent teeth present, in occlusion, are the maxillary right first premolar, mandibular left first premolar, and mandibular first molar.

An interproximal carious lesion is on the mandibular left first premolar.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all the remains, and white apparent mold is on the fragments of the cranium.

The combination of endocranial suture closure on a fragment of the sagittal suture and the presence of slight wear on the teeth suggest an age at death of 23 to 35 years. The presence of two hatpins near the cranium suggests female sex.

BURIAL 689.—FN: A coffin outline, nails, and wood were the only artifacts in association with this burial.

The fragmentary cranial remains are of a child. Bones present are the occipital (3) and both temporals (3).

Deciduous teeth present, in occlusion, are the maxillary left first molar and mandibular lateral incisors. Those not in occlusion are the second molars and right canines.

Permanent teeth present, not in occlusion, are the first molars and maxillary central incisors.

Preservation of the remains corresponds to weathering stage 4.

Dental development suggests an age at death of about 1.6 years.

BURIAL 690.—FN: Nails, wood, and a hairpin found in the cranial region were in association with this burial. No other artifacts were present.

The incomplete remains are of a subadult. Bones present are the frontal (2); left (3) and right (2) parietals; both temporals (2); left zygomatic (2); left (2) and right (3) maxillae; left (2) palatine; mandible (2); left clavicle (2); both scapulae (3); rib fragments; five cervical vertebrae; one thoracic vertebra; middle third (2) and remainder (3) of the left humerus; left femur (2);

distal third (3) and remainder (2) of the left tibia; epiphyses and (2) proximal (2), middle (2), and distal (3) thirds of the right tibia; middle thirds (3) of the fibulae; three metacarpals; both calcanei; both tali; one foot navicular; and three metatarsals, side and digits undetermined.

The deciduous mandibular left second molar is present and in occlusion.

All permanent teeth are present, in occlusion, except the maxillary third molars, mandibular third molars (left present but not in occlusion), and mandibular second premolars (left congenitally absent).

Carious lesions are on the interproximal surface of the deciduous tooth and the occlusal surfaces of the permanent maxillary second molars.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the remains. Fabric and straight brown hair, 53 mm long, were with the skeletal remains.

The extent of dental formation suggests an age at death of 12 to 13 years. The presence of the hairpin suggests female sex.

BURIAL 691.—FN: Coffin nails and a coffin outline with wood along sections of its perimeter were the only associated artifacts. The coffin was sized for an infant.

No human remains were recovered.

BURIAL 692.—FN: A coffin outline, nails, and wood were found in association with this burial. One chert flake was recovered from the cranial region.

The incomplete remains are of an adult, likely female. Bones present are the frontal (2); both parietals (2); occipital (2); both temporals (2); left zygomatic (2); both maxillae (2); both palatines (2); mandible (2); both clavicles (2); left (3) and right (2) scapulae; both ilia (2); all cervical vertebrae; six thoracic vertebrae; both first ribs; two left and four right other ribs; distal epiphysis (2) and diaphysis (2) of the left humerus; epiphyses (3) and diaphysis (2) of the right humerus; proximal (2), middle (3), and distal (3) thirds of the left radius; distal third (2) and distal epiphysis (2) of the right radius; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the left ulna; proximal epiphysis (2) and proximal (2), middle (3), and distal (2) thirds and distal epiphysis (3) of the right ulna; left femur (2); distal epiphysis (3) and remainder (2) of the right femur; epiphyses (3) and remainder (2) of both tibiae; distal third (3) of the left fibula; middle third (2) of the right fibula; both calcanei; both tali; both cuboids; left first cuneiform; both second and third cuneiforms; right foot navicular; and four left and two right metatarsals, digits undetermined.

Permanent teeth present in occlusion are, from the maxillae, the third molars, left second molar, left first molar, left premolars, left canine (damaged), right lateral incisor (damaged), central incisors (damaged), and, from the mandible (all damaged), the right second molar, left first molar, premolars, canines, and incisors.

Carious lesions are in the maxillary dentition on the interproximal surfaces of the left second molar (two lesions), left first molar, left second premolar, right first premolar, and left central incisor, and in the mandibular dentition on the large surfaces of the right second molar and left first molar. Alveolar abscesses are as-

sociated with the mandibular right second molar and mandibular left first molar.

Preservation of the remains corresponds to weathering stage 3. Green staining is on the right innominate, a rib, and a cervical vertebra. Black staining is on the long bones and innominates. Three masses of light brown to blond hair about 120 mm long are present. Radiographs of the hair revealed no obvious artifacts.

Cranial suture closure and dental attrition suggest an age at death of 25 to 35 years. The general gracility of the bones suggests likely female sex.

BURIAL 693.—FN: Wood was along the western side of the coffin, and rickrack was along its lower east side. The rickrack was on top of fabric that had adhered to the interior coffin wood. Other artifacts found were fabric fragments, nails, hooks (from hooks and eyes), and a single porcelain button recovered from the thoracic region.

The incomplete remains are of an adult, likely female. Bones present are the frontal (2); left (2) and right (3) temporals; mandible (2); two cervical vertebrae; one thoracic vertebra; one lumbar vertebra; one left first rib; one left other rib; proximal (3), middle (2), and distal (3) thirds and distal epiphysis (3) of the left humerus; proximal epiphysis (3) and middle third (3) of the left femur; and proximal epiphysis (3) and middle (2) and distal (3) thirds of the right femur.

The permanent maxillary right second molar is present and in occlusion but damaged. The mandibular molars, mandibular premolars, and mandibular left canine were lost antemortem.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the long bones.

Fine, woven bone is on the thickened cortex of the proximal third of the right femoral diaphysis.

The extent of degenerative change in the skeleton suggests an age at death of 55 to 70 years. Skeletal gracility suggests female sex.

BURIAL 694.—FN: A coffin outline, wood, and nails were in association with this burial. Metal buttons (iron and copper) and fabric fragments were recovered from the upper and lower torso region.

The incomplete remains are of an adolescent. Bones present are the parietals (2); occipital (2); right temporal (3); mandible (3); left clavicle (3); both scapulae (3); both ilia (3); rib fragments; distal epiphyses (3) and diaphyses (2) of the humeri; middle third (3) of the right radius; proximal thirds (2) of the ulnae; epiphyses (3) and diaphysis (2) of the left femur; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the right femur; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the left tibia; diaphysis (3) of the right tibia; middle (2) and (3) distal thirds and distal epiphysis (2) of the left fibula; both calcanei; and left talus.

All permanent maxillary teeth except the third molars and all permanent mandibular teeth except the right second premolar and right central incisor are present and in occlusion.

Carious lesions are on the occlusal surfaces of the maxillary right second molar, maxillary first molars, and mandibular left

first molar and the interproximal surfaces of the maxillary left second molar, maxillary first molars, maxillary right second premolar, mandibular second molars, and mandibular first molars (two lesions in each tooth).

Preservation of the remains corresponds to weathering stage 4. Black staining is on the long bones and cranium fragments. A small amount of blond hair is present.

The extent of dental formation suggests an age at death of 15 to 18 years.

BURIAL 695.—FN: A coffin outline was in association with this burial. Artifacts include nails and a pin recovered from the cranial region.

The fragmentary remains are of an adult female. Bones present are the frontal (2); left (2) and right (3) parietals; occipital (2); left temporal (2); left zygomatic (2); left maxilla (3); sacrum (3); both scapulae (2); both ilia (2); both ischia (2); both patellae (2); left humerus (2); right humerus (3); distal epiphysis (3) and remainder (2) of the left radius; right radius (3); proximal epiphysis (2) and proximal (2) and middle (3) thirds of the left ulna; diaphysis (3) of the right ulna; both femora (2); left tibia (2); right tibia (3) minus the distal epiphysis; diaphysis (3) of the left fibula; middle third (3) of the right fibula; right hand navicular; right lunate; both greater multangulars; right lesser multangular; left hamate; both first metacarpals; left second metacarpal; right third metacarpal; one proximal hand phalanx; both calcanei; both tali; right cuboid; right foot navicular; right fourth and fifth metatarsals; and one other metatarsal, side and digit undetermined.

Permanent teeth present, in occlusion, are the maxillary left second premolar, maxillary left central incisor, and mandibular first premolars.

Carious lesions are on the interproximal surface of the mandibular right second premolar and cervical area of the maxillary left central incisor.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the remains.

Suture closure and arthritic change suggest an age at death of 50 to 65 years. Pelvic morphology and skeletal gracility suggest female sex.

The left maxillary central incisor and right mandibular first premolar have unusual patterns of dental wear. The incisor shows planar wear on the distal side of the lingual surface of the tooth, extending from the center of the crown to about 3 cm below the CEJ (onto the root). The premolar shows extreme planar wear on the mesial surface, angling buccally and continuing down at least 5 mm of the root. Similar wear, although less marked, is also on the distal surface. Most of the buccal cusp is worn away at an angle. This wear is probably due to loss of the adjacent teeth, followed by attrition from opposing teeth.

Pathological conditions are limited to arthritic change, visible on the anterior head of the left humerus (moderate lipping and porosity), and marked pitting on the centra of the fifth lumbar vertebra (inferior) and first sacral segment. Most of the bones were too fragmentary for observation.

Maximum length of the left femur is 43.0 cm, suggesting a living stature of 160.3 cm (5 ft 3.1 in).

BURIAL 696.—FN: This burial was below burial 684 and above burial 699. A coffin outline and nails were in association with the burial. The coffin was sized for a small infant.

Present is an unidentifiable fragment of bone or wood.

BURIAL 697.—FN: A coffin outline, nails, and wood were associated with this burial. No other artifacts were present.

The fragmentary skeletal remains are of an adult female. A mat of light brown hair is also present (Figure 104). Bones present are the calvarium (2); both zygomatics (2); both maxillae (2); both palatines (1); mandible (2); both clavicles (2); sacrum (3); both scapulae (3); both ilia (2); right ischium (3); right patella (2); first two and three other cervical vertebrae; two first ribs; three other left ribs; five other right ribs; middle third (3) and remainder (2) of the left humerus; right humerus (2); epiphyses (2), proximal third (2), and remainder of the diaphysis (1) of the left radius; right radius (2); left ulna minus the distal epiphysis (2); proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds of the right ulna; epiphyses (2) and diaphyses (1) of the femora; proximal third (1) and remainder (2) of the left tibia; right tibia (2); both fibulae (2) minus the proximal epiphyses; left hand navicular; three left and two right metacarpals; three proximal hand phalanges and two middle hand phalanges; both calcanei; both tali; both cuboids; right foot navicular; all left metatarsals; right fourth and fifth metatarsals; and two right metatarsals, digits unknown.

In the permanent dentition, all maxillary teeth except the left first molar and left central incisor, which were lost antemortem, and the right first molar and second premolar, which were lost postmortem, and all mandibular teeth except the right first molar, lost antemortem, are present and in occlusion. The maxil-

lary right first premolar and maxillary left lateral incisor are damaged.

Cariou lesions are on the interproximal surfaces of the maxillary second and third molars, maxillary left second premolar, maxillary right canine, maxillary left lateral incisor, and mandibular right second and third molars; smooth surface of the mandibular left third molar; and large surface of the maxillary first premolars. An alveolar abscess is associated with the maxillary left first premolar.

Discrete-boundary hypocalcification is on the mandibular right (3.1 mm) and left (4.6 mm) third molars.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the cranium and innominates. A small amount of green staining is on the sternal end of the right clavicle.

The estimated length of the right femur is 43.5 cm, suggesting a living stature of about 161.5 cm (5 ft 3.6 in).

The extent of occlusal dental attrition and cranial closure suggest an age at death of 23 to 27 years. Likely female sex is indicated by a radiograph of the hair that showed patterning suggestive of a bun arrangement.

Pathological conditions include arthritic lipping of the left temporal fossa and extensive healed infection on the right radius (Figure 105). The entire diaphysis of the radius shows thickening and destruction of the lateral cortex; the medial cortex is intact. The interior is filled with spongy bone with irregular patterning (Figure 106). The epiphyses are not involved. The bone is very well remodeled, with no evidence of activity at the time of death. The condition probably represents localized trauma to the lateral surface, followed by infection. A radiograph of the left tibia revealed no evidence of lines of increased density.

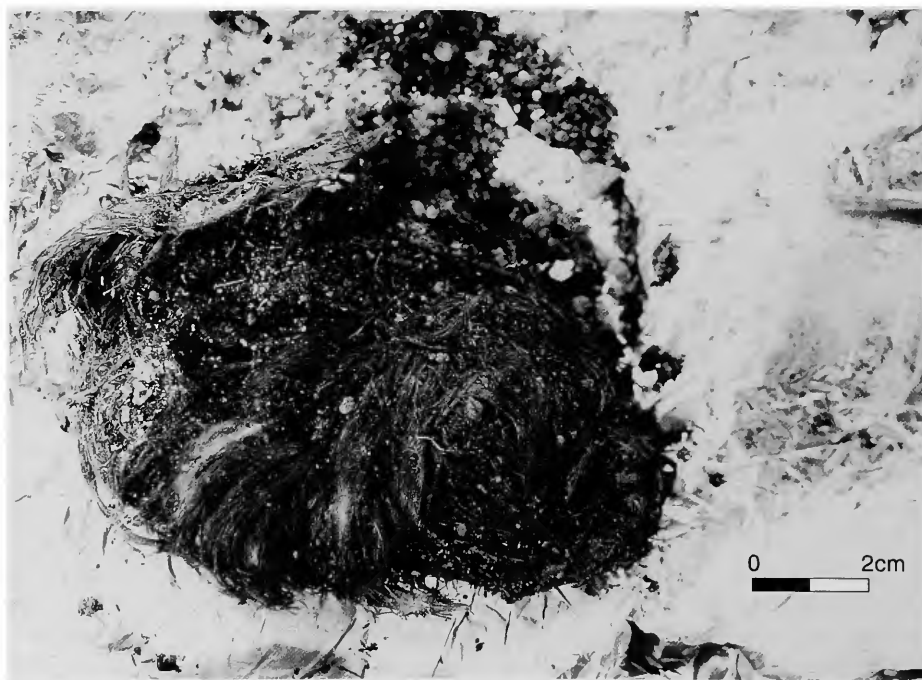


FIGURE 104.—Hair associated with burial 697.

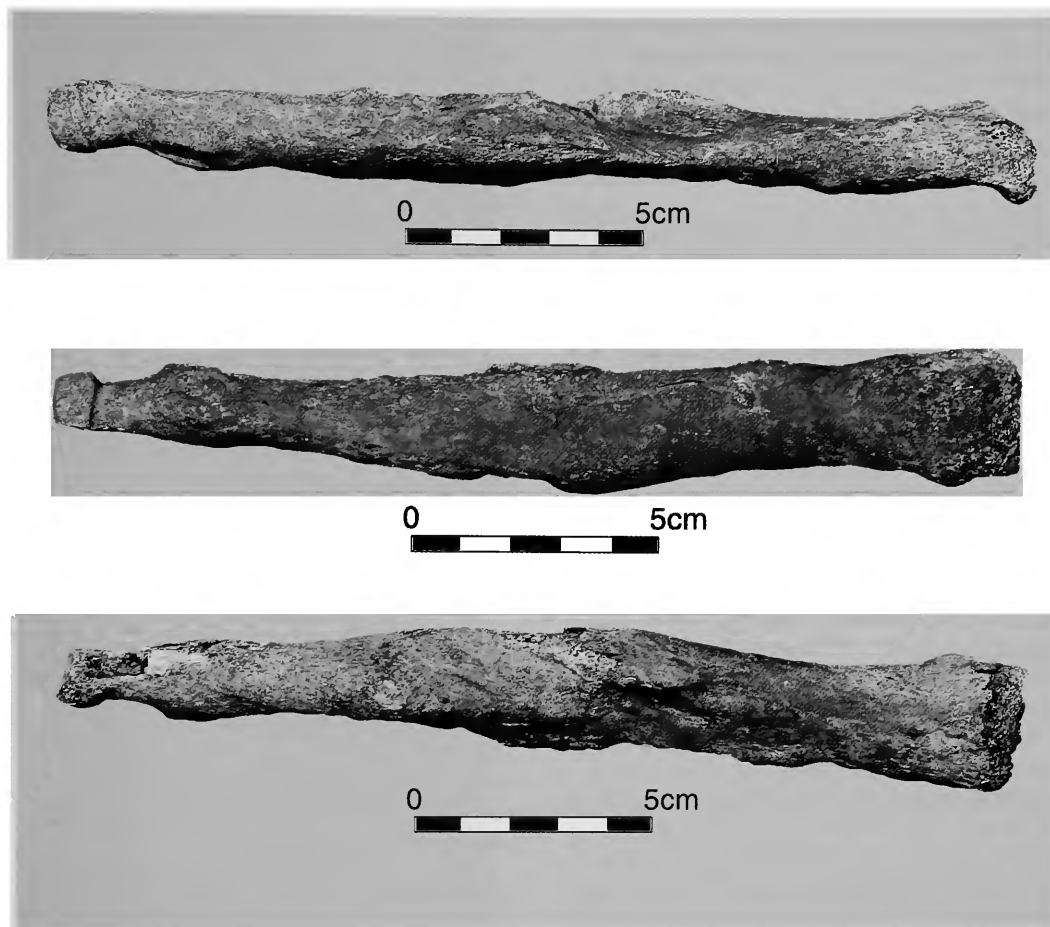


FIGURE 105.—Three views of abnormal, well-remodeled thickening of the right radius, burial 697.

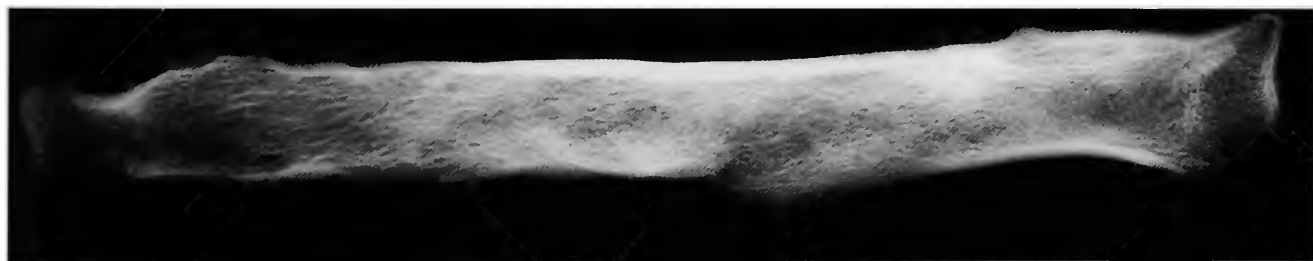


FIGURE 106.—Radiograph of abnormal, well-remodeled thickening of the right radius, burial 697.

Dental health was poor. Moderate to heavy calculus is on most of the dentition.

BURIAL 698.—FN: A partial coffin outline was in association with this burial. Artifacts recovered were nails and a metal band found in the lower torso region.

The incomplete remains are of an adult male. Bones present are the cranium (1); both zygomatics (1); both maxillae (2); mandible (1); both clavicles (1); both scapulae (2); both ilia (1); left (2) and right (3) ischia; left (2) and right (3) patellae; six cervical vertebrae; three thoracic vertebrae; four lumbar vertebrae; rib

fragments; both humeri (1); proximal (3), middle (1), and distal (1) thirds and distal epiphysis (1) of the left radius; middle (2) and distal (1) thirds and distal epiphysis (1) of the right radius; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds of the left ulna; proximal epiphysis (1) and proximal (2), middle (1), and distal (3) thirds of the right ulna; both femora (1); epiphyses (2) and diaphysis (1) of the left tibia; proximal epiphysis (2) and remainder (1) of the right tibia; proximal (3), middle (1), and distal (1) thirds of the left fibula; middle (1) and distal (1) thirds and distal epiphysis (1) of the right fibula; eight

proximal hand phalanges; seven middle hand phalanges; both calcanei; both tali; both cuboids; both first cuneiforms; right second and third cuneiform; right navicular; first four metatarsals; left fifth metatarsal; seven proximal foot phalanges; and three middle foot phalanges.

All permanent teeth were lost antemortem except those of the right maxilla.

Preservation of the remains corresponds to weathering stage 2. Desiccated soft tissue contains three hooks and three eyes and a four-holed button about 16.5 mm in diameter (visible on a radiograph). Field notes describe a metal band around the wrist.

The extent of dental loss and other degenerative changes suggest an age at death of 65 to 80 years. Skeletal robusticity suggests male sex.

Arthritic changes were noted on the temporomandibular joints of the temporals, both glenoid cavities of the scapulae, anterior heads of both humeri, proximal articular surface of the ulnae, both radii in the radial tuberosity area, and the centra of the cervical vertebrae, especially the third and fourth.

A smooth-walled defect, 6 × 8 mm, 5 mm deep, is on the posterior surface of the left radius, directly below the head margin. A kneeling facet is on the right second metatarsal (Figure 107).

BURIAL 699.—FN: This burial was below burials 684 and 696. A coffin outline, plain and decorative nails, and wood were associated with the burial, and copper straight pins were recovered from the lower cranial/clavicle region.

The incomplete remains are of a child. Bones present are the frontal (2); both parietals (2); occipital (2); left (2) and right (3) temporals; mandible (3); left ilium (2); diaphysis (1) of the left femur; diaphysis (3) of the right femur; distal third (2) and remainder (1) of the diaphysis of the left tibia; proximal (3), middle (2), and distal (3) thirds of the diaphysis of the right tibia; and proximal (3), middle (1), and distal (2) thirds of the left fibula.

Deciduous teeth present, in occlusion, are the left molars, left canines, and left maxillary incisors.

Permanent teeth present, not in occlusion, are the left first molars, maxillary left canine, maxillary right lateral incisor, maxillary central incisors, and mandibular left lateral incisor.

Carious lesions are in deciduous maxillary teeth on the interproximal surfaces of the left second molar and left incisors.

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation suggests an age at death of 2.5 to 3 years.

BURIAL 700.—FN: Nails and wood were the only artifacts associated with this burial.

Braided dark blond hair shaped into a bun is present (Figure 108). Radiographs showed no signs of hairpins.

The incomplete remains are of an adult female. Bones present are the frontal (1); left (1) and right (2) parietals; occipital (2); left (2) and right (1) temporals; left (3) and right (2) zygomatic; both maxillae (1); left (2) and right (1) palatines; mandible (1); left (2) and right (1) clavicles; sacrum (3); both scapulae (3); both ilia (2); right ischium (2); one patella (3); six cervical vertebrae; five thoracic vertebrae; one lumbar vertebra; both first ribs; one right second rib; two left other ribs; distal epiphysis (1) and remainder (2) of the left humerus; proximal epiphysis (2) and re-

mainder (1) of the right humerus; left radius (1) minus the proximal epiphysis; distal (2) epiphysis and remainder (1) of the diaphysis of the right radius; proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the left ulna; distal epiphysis (3) and remainder (1) of the right ulna; left femur (2); distal third (2) and remainder (1) of the right femur; proximal (1), middle (2), and distal (3) thirds of the left tibia; distal epiphysis (2) and remainder (1) of the right tibia; proximal (2) and distal (2) thirds of the right fibula; left lunate; left triquetral; left capitate; left hamate; all metacarpals; six proximal hand phalanges; four middle hand phalanges; one calcaneus, side undetermined; right talus; right first metatarsal; and four metatarsals, side and digits undetermined.

All permanent teeth are present, in occlusion, except the maxillary right first molar; mandibular right third molar and mandibular left second premolar, both lost antemortem; and mandibular left first premolar, lost postmortem. The maxillary right second molar and maxillary right canine were damaged.

Carious lesions are on the interproximal surfaces in the maxillary dentition on the third molars, left second molar (two lesions), right second premolar (two lesions), and both first premolars, and in the mandibular dentition on the left third molar, left and right (two lesions) first molars, and right second premolar; smooth surfaces of the maxillary left third molar and mandibular left second and third molars; and large surfaces of the maxillary right second molar, maxillary left first molar, and maxillary right canine. Alveolar abscesses are on the maxillary left first and second molars.

A discrete-boundary hypocalcification is on the mandibular right second molar (1.6 mm). A diffuse-boundary hypocalcification is on the maxillary left third molar, involving the entire crown.

Preservation of the remains corresponds to weathering stage 3. Green staining is on the distal third of the diaphysis of the left tibia and medial side of the right ilium. Black staining is on the diaphysis of the right humerus and on both parietals.

The extent of skeletal maturation suggests an age at death of 27 to 32 years. Skeletal gracility suggests female sex.

The cranium is very thick (8 mm) on the posterior parietal.

BURIAL 701.—FN: Plain and ornamental nails were the only artifacts associated with this burial.

The incomplete remains are of a child. Bones present are the frontal (2), occipital (2), both temporals (2), mandible (1), first two and two other cervical vertebrae, one thoracic vertebra, and long-bone fragments.

Deciduous teeth present, in occlusion, are the molars, right canines, right lateral incisors, and mandibular left canine.

Permanent teeth present, not in occlusion, are the first molars, canines, lateral incisors, right central incisors, mandibular second molars, and mandibular left central incisor.

Carious lesions are in deciduous teeth on the interproximal surfaces of the mandibular first molars.

Enamel defects in permanent teeth consist of linear horizontal grooves on the maxillary left (2.3 mm) and right (2.3 mm) first molars.



FIGURE 107.—Kneeling facet of second metatarsal, burial 698.

Preservation of the remains corresponds to weathering stage 3. The extent of dental formation suggests an age at death of about 3.5 years.

Healed cribra orbitalia is in both orbits. Relatively little dental wear is present.

BURIAL 702.—FN: A coffin outline was associated with this burial. Artifacts recovered include nails, clear glass, brown glass, and three ceramic sherds. A fragment of leather was found on the eastern side of the grave in the grave fill.

The incomplete remains are of a child. Bones present are the temporals (2); left (3) and right (2) maxillae; right palatine (3); right scapula (3); right ilium (2); rib fragments; middle third (2) of the left humerus; proximal epiphysis (3) and diaphysis (2) of the right humerus; distal third (2) of the right radius; distal third (2) of the right ulna; diaphysis (3) of the left femur; middle (2) and distal (2) thirds and remainder (3) of the right femur; middle third (3) of the left tibia; proximal epiphysis (3) and proximal (3) and middle (3) thirds of the right tibia; one distal hand phalanx; and one right foot navicular.

The deciduous molars are present and in occlusion.

Permanent teeth present in occlusion are the first molars, right lateral incisors, central incisors, and mandibular left lateral incisor. Those not in occlusion are the second molars, left second premolars, first premolars, and canines.

Carious lesions are in the deciduous teeth on the interproximal surfaces of the maxillary molars, mandibular left first molar, and mandibular right molars.

Preservation of the remains corresponds to weathering stage 4. Black staining is on the long bones. Strands of dark blond hair were associated with the burial.



FIGURE 108.—Bun of braided hair, burial 700.

The extent of dental formation suggests an age at death of about 9 years.

A large tuberculum dentale is on the maxillary lateral incisor.

BURIAL 703.—FN: A coffin outline and nails were in this vandalized burial. No other associated artifacts were found.

The incomplete remains are of an adult male. Bones present are the cranium (2); both zygomatics (3); both maxillae (1); both palatines (2); mandible (2); both scapulae (3); left (2) and right (3) ilia; left (1) ischium; left patella (2); all cervical vertebrae; three left ribs; distal epiphyses (2) and remainder (1) of both humeri; distal epiphysis (2) and diaphysis (1) of the left radius; proximal epiphysis (2) and proximal (2), middle (1), and distal (2) thirds and distal epiphysis (3) of the right radius; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (3) of the left ulna; proximal epiphysis (1) and proximal (1), middle (2), and distal (3) thirds and distal epiphysis (3) of the right ulna; proximal epiphysis (1) and proximal (1), middle (1), and distal (2) thirds and distal epiphysis (2) of the left femur; epiphyses (3) and proximal (2), middle (2), and distal (3) thirds of the right femur; left lesser multangular; capitate; hamate; one metacarpal, side and digit undetermined; left calcaneus; left talus; and left cuboid.

Permanent teeth present, in occlusion, are all maxillary teeth and the following mandibular teeth: third molars, left second molar, first molars, premolars, canines, and incisors (both damaged). The mandibular right second molar was lost antemortem.

A carious lesion is on the occlusal surface of the mandibular left second molar.

Preservation of the remains corresponds to weathering stage 3. Black staining is on the long bones and dentition.

The extent of skeletal maturation and degenerative change suggests an age at death of 35 to 40 years. Skeletal robusticity suggests male sex.

Slight, irregular, well-remodeled periosteal deposits are on the right medial fibula and right lateral tibia. Slight arthritic formation is on the posterior aspects of the occipital condyles, head of the humerus, distal left radius, posterior aspect of the head of the left femur, and vertebral centra.

Maximum femur length is 45.4 cm, suggesting a living stature of about 169.5 cm (5 ft 6.7 in).

BURIAL 704.—FN: This burial had been vandalized. Nails and brick were the only artifacts associated with it.

The incomplete remains are of an adult male. Bones present are the frontal (2); both parietals (2); occipital (3); both temporals (3); left (2) and right (3) zygomatics; left (1) and right (2) maxillae; both palatines (2); mandible (1); both clavicles (2); left scapula (3); both ilia (3); left ischium (3); three cervical vertebrae; one thoracic vertebra; one lumbar vertebra; two left and two right ribs; proximal (3), middle (2), and distal (2) thirds and distal epiphysis (2) of the left humerus; diaphysis (2) of the right humerus; proximal (3) and distal (3) thirds and distal epiphysis (1) of the left radius; distal epiphysis (3) of the right radius; proximal epiphysis (1) and proximal third (3) of the left ulna; proximal third (2) of the right ulna; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the left femur;

proximal (3), middle (2), and distal (1) thirds and distal epiphysis (1) of the right femur; distal third (2) and remainder (1) of the left tibia; proximal (2) and middle thirds (1) of the right tibia; right first metacarpal; three other right metacarpals, digits undetermined; both calcanei; left talus; right first cuneiform; right first metatarsal; and left metatarsal, digit undetermined.

All permanent teeth are present, in occlusion, except the mandibular right first premolar, which had been lost postmortem.

Enamel defects consist of linear horizontal grooves on the mandibular left first premolar (3.4 mm) and mandibular left canine (4.8 mm).

Preservation of the remains corresponds to weathering stage 5. Black staining is on the right mandible, right parietal, right femur, right tibia, and left tibia.

The extent of occlusal dental attrition and skeletal maturation suggest an age at death of 22 to 25 years. Skeletal robusticity suggests male sex.

BURIAL 705.—FN: This burial had been disturbed by vandals. The only artifacts recovered were nails.

The incomplete remains are of an adult male. Bones present are the frontal (1); both parietals (1); occipital (1); both temporals (2); both maxillae (2); both palatines (1); mandible (1); both clavicles (3); both scapulae (3); both ilia (2); right ischium (2); both patellae (2); first two cervical vertebrae; fragments of other vertebrae; left humerus (1); proximal epiphysis (2) and remainder (1) of the right humerus; epiphyses (2) and remainder (1) of the left radius; distal epiphysis (2) and remainder (1) of the right radius; distal epiphysis (3) and remainder (1) of the left ulna; proximal epiphysis (1) and diaphysis (1) of the right ulna; both femora (1); proximal (2), middle (2), and distal (3) thirds of the left tibia diaphysis; proximal epiphysis (2) and proximal (2), middle (1), and distal (2) thirds of the right tibia; one pisiform; all metacarpals; two proximal hand phalanges; one middle hand phalanx; both calcanei; both tali; left third cuneiform; left foot navicular; and left metatarsals.

Permanent teeth present, in occlusion, from the maxillae are the left third molar, right molars, second premolars, right first premolar, left canine, and left lateral incisor, and from the mandible the right third molar, left second molar, left first molar, left second premolar, right first premolar, left canine, and incisors.

Carious lesions are on the occlusal surface of the maxillary right second molar, interproximal surface of the maxillary left lateral incisor, and cervical areas of the maxillary right second molar and mandibular right first premolar. Alveolar abscesses are on the maxillary right first molar and mandibular left second molar.

Enamel defects consist of linear horizontal grooves on the mandibular left (3.6 mm) and right (3.4 mm) central incisors.

Preservation of the remains corresponds to weathering stage 2.

The extent of occlusal dental attrition and skeletal degenerative changes suggest an age at death of 45 to 60 years. Skeletal robusticity suggests male sex.

Maximum femur length is 48.9 cm, suggesting a living stature of about 178 cm (5 ft 10.1 in).

Enthesophytes are on the radial tuberosity and ulnar tuberosity.

BURIAL 706.—FN: Nails were the only associated artifacts.

The incomplete remains are of an adult male. Bones present are the cranium (1); left zygomatic (1); both maxillae (2); both palatines (2); mandible (2); left (1) and right (2) clavicles; both scapulae (3); left (1) and right (2) ilia; left patella (2); second cervical vertebra and two other cervical vertebrae; two lumbar vertebrae; rib fragments; left humerus (1); proximal epiphysis (2) and proximal (3) and middle (2) thirds of the right humerus; proximal epiphysis (1) and proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left radius; diaphysis (2) of the right radius; left ulna (1); diaphysis (2) of the right ulna; proximal epiphyses (2) and remainder (1) of the femora; both epiphyses (2) and diaphyses (1) of the tibiae; proximal epiphysis (2) and proximal third (2) of the left fibula; proximal (2) and distal (2) thirds of the right fibula; both calcanei; both tali; left third cuneiform; left second and third metatarsals; and one proximal foot phalanx.

Permanent teeth present, in occlusion, are the maxillary left third molar, maxillary central incisors, mandibular left third molar, mandibular left premolars, and mandibular left canine. Teeth lost antemortem from the maxillae were the left second molar, left first molar, left second premolar, first premolars, canines, and lateral incisors, and from the mandible the left second molar, left first molar, and right molars.

Carious lesions are on the interproximal surfaces of the mandibular left second premolar (two lesions), mandibular left first premolar, mandibular left canine, and the cervical areas of the maxillary left central incisor and mandibular left first premolar.

Preservation of the remains corresponds to weathering stage 3. A large area of green staining with associated desiccated soft tissue is on the right maxilla.

The extent of occlusal dental attrition and skeletal maturation suggest an age at death of 35 to 45 years. Bone size and robusticity suggest male sex.

The posterior wall of the left maxillary sinus displays a 21 × 24 mm area of bone formation (Figure 109), covering almost all of the surface. The anterior wall of the sinus is normal. The abnormal bone is a deposit on the normal surface and appears smooth. This may represent long-term infection of the sinus cavity, perhaps related to dental disease, for all teeth in that area had been lost antemortem. The right maxillary sinus is fragmentary but shows similar bone deposits.

At least two ribs in the four-to-nine area show evidence of active periosteal bone apposition. One left rib shows a 14.9 × 6.3 mm patch of fine, woven bone on the visceral surface, beginning 41.6 mm from the articular end (Figure 110). The lesion was active at the time of death, with no evidence of healing. Another left rib shows similar deposits, about 69 mm in length, along the visceral surface of a fragment. The deposits begin about 8 mm from where the articular surface would have been. Fine, porous bone is present with no apparent healing.

Enthesopathies are on the left ulna (ulnar tuberosity), left radius (radial tuberosity), and left gonial angle area of the mandible.

BURIAL 707.—FN: A coffin outline and plain and decorative nails were in association with this burial, which had been disturbed at the foot end. No other artifacts were recovered.

The incomplete remains are of a child. Bones present are the frontal (2), right parietal (2), both temporals (2), left (3) and right (2) maxillae, mandible (3), all cervical vertebrae, and many unidentified long-bone fragments.

Deciduous teeth present, in occlusion, are the maxillary right second molar, maxillary first molars, maxillary canines, mandib-



FIGURE 109.—Bone formation within left maxillary sinus, burial 706.



FIGURE 110.—Fine bone formation on visceral surface of rib, burial 706.

ular second molars, mandibular left canine, and mandibular right lateral incisor.

Permanent teeth present in occlusion are the first molars. Those not in occlusion are the incisors, canines, maxillary left second molar, maxillary right second premolar, and mandibular premolars.

Cariou lesions in deciduous teeth are on the occlusal surfaces of the maxillary right second molar and mandibular right second molar and the interproximal surfaces of the maxillary right second molar, maxillary first molars, maxillary right canine, and mandibular right second molar.

Enamel defects of the deciduous teeth are linear horizontal pits (Figures 111, 112) in the maxillary right second molar (2.5 mm), maxillary right first molar (1.1 mm), and mandibular left (2.4 mm) and right (2.2 mm) second molars, and single pits on the two left canines.

Enamel defects in the permanent dentition are linear horizontal grooves in the maxillary left (4.4 mm) and right (4.2 mm) ca-

nines and mandibular left lateral incisor (4.7 mm); linear horizontal pits in the maxillary left (3.8 mm) and right (3.0 mm) first molars and mandibular left (2.7 mm) and right (1.9 mm) canines; nonlinear arrays of pits in the maxillary left (5.2 mm) and right (3.4 mm) first molars, maxillary left (2.9 mm) and right (4.4 mm) central incisors, mandibular left (4.5 mm) and right (4.6 mm) first molars, and mandibular left (n/a) and right (7.0 mm) first premolars; single pits in the maxillary left lateral incisor (2.7 mm), mandibular right lateral incisor (2.7 mm), mandibular left (3.0 mm) and right (3.0 mm) central incisors; and discrete-boundary hypocalcification on the maxillary right central incisor (6.1 mm).

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of 4.7 to 6.8 years.

One tooth, in the form of a developing maxillary premolar, appears to be diminutive.



FIGURE 111.—Hypoplastic pits in deciduous molars, burial 707.



FIGURE 112.—Occlusal view of pits in deciduous mandibular second molars, burial 707.

BURIAL 708.—There are no field records; no human remains were recovered.

BURIAL 709.—FN: A coffin outline, nails, and wood were in association with this burial. No other artifacts were present. The size of the coffin suggests the burial was of a young child.

No human remains were recovered.

BURIAL 710.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

The incomplete remains are of an adolescent male. Bones present are the calvarium (1); both maxillae (1); mandible (1); both clavicles (3); both scapulae (3); pelvis fragments; right patella (1); first cervical vertebra; three other cervical vertebrae; rib fragments; left humerus (1); proximal epiphysis (2) and proximal (1), middle (2), and distal (3) thirds of the right humerus; proximal epiphysis (2) and proximal (1), middle (1), and distal (3) thirds of the left radius; diaphysis (2) of the right radius; proximal epiphysis (2) and proximal (1), middle (1), and distal (2) thirds of the left ulna; proximal epiphysis (2) and proximal (1), middle (1), and distal (3) thirds of the right ulna; proximal epiphysis (2) and proximal (2), middle (1), and distal (3) thirds of the left femur; proximal epiphysis (2) and diaphysis (1) of the right tibia; proximal epiphysis (2) and diaphysis (2) of the left fibula; distal epiphysis (1) and diaphysis (1) of the right fibula; both calcanei; both tali; right cuboid; both foot naviculars; right metatarsals; and left second through fifth metatarsals.

All permanent maxillary teeth are present, in occlusion, except the third molars (present but not in occlusion). Permanent mandibular teeth present, in occlusion, are the first and second molars, right second premolar, left first premolar, canines (damaged), and incisors. The third molars are present but are not in occlusion.

Interproximal carious lesions are on the maxillary second premolars, maxillary left lateral incisor, mandibular left first molar, mandibular left first premolar, and mandibular left canine.

Preservation of the remains corresponds to weathering stage 3. A small amount of apparent blond hair, about 63 mm long, is present.

Dental and skeletal maturation suggest an age at death of 15.1 to 16.3 years. Skeletal robusticity suggests male sex.

BURIAL 711.—FN: Nails were the only artifacts found in association with this burial.

The incomplete remains are of an adult, likely male. Bones present are the frontal (3); both parietals (2); occipital (2); both temporals (2); mandible (2); sacrum (3); both ilia (3); both patellae (2); three thoracic vertebrae; two lumbar vertebrae; distal epiphysis (2) and distal third (2) of the left humerus; distal third (3) and distal epiphysis (3) of the right humerus; proximal epiphyses (2) and proximal thirds (3) of the ulnae; epiphyses (2) and diaphyses (3) of the femora; proximal epiphysis (2) and proximal (3), middle (2), and distal (3) thirds of the left tibia; proximal epiphysis (3) and proximal (3), middle (2), and distal (3) thirds of the right tibia; and middle thirds (2) of the fibulae.

Permanent teeth present, in occlusion, from the maxillae are the left third molar, right first and second molars, left second premolar, canines, and central incisors, and from the mandible the left first premolar (damaged), left canine, and left lateral incisor. The mandibular molars and mandibular right second premolar were lost antemortem.

Preservation of the remains corresponds to weathering stage 4.

The extent of occlusal dental attrition and cranial suture closure suggest an age at death of 30 to 45 years. Skeletal robusticity suggests male sex.

BURIAL 712.—FN: This burial had been disturbed. Wood and fabric were along the perimeter of the coffin, with rickrack along the northern end and upper west side. Other associated artifacts include plain and ornamental nails, porcelain buttons, metal buttons, fabric fragments, and apparent shoe leather recovered from the southern end of the coffin.

The incomplete remains are of an adult, probably male. Bones present are the frontal (3); both parietals (3); occipital (2); both temporals (2); left zygomatic (2); both maxillae (3); mandible (2); first two cervical vertebrae; middle thirds (3) of the ulnae; and proximal (3), middle (2), and distal (3) thirds of the femora.

Permanent teeth present, in occlusion, from the maxillae are the left first premolar, canines, left lateral incisor, and central incisors, and from the mandible the left second molar, left first molar (damaged), right first premolar (damaged), right canine (damaged), and left and right (damaged) central incisors. Permanent teeth lost antemortem (all mandibular) were the third molars, right first and second molars, second premolars, left first premolar, left canine, and left lateral incisor.

Carious lesions are on the interproximal surfaces of the maxillary left canine and mandibular right central incisor and a large surface of the mandibular right canine.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the anterior surfaces of both femora and the right tibia. A mat of straight brown hair, about 100 mm long, is present.

The extent of occlusal dental attrition and cranial suture closure suggest an age at death of 30 to 45 years. Skeletal robusticity suggests male sex.

The maxillary incisors display extreme wear on their lingual surfaces, likely produced by an overbite.

BURIAL 713.—FN: A coffin outline, tacks, plain and decorative nails, and wood were in association with this burial. Other artifacts found include buttons, fabric, a metal coffin plate in the sternal region, and escutcheons. Leather shoes were recovered from the southern end of the burial.

The petrous portions of the temporals (3) and the following deciduous teeth, not in occlusion, of an infant are present: the first molars, maxillary right second molar, maxillary right canine, and mandibular second molars.

Preservation of the remains corresponds to weathering stage 4.

Dental formation suggests an age at death of 0.5 to 1 year.

BURIAL 714.—FN: A possible coffin outline and plain and ornamental nails were in association with this burial, which was below burial 486. No other artifacts were recovered. The coffin was sized for an adolescent.

No human remains were recovered.

BURIAL 715.—FN: This burial had been disturbed below the innominate region by a building foundation. Only a partial coffin outline and nails were present.

The incomplete remains are of an adult, probably male. Bones present are the frontal (3); both parietals (3); occipital (2); left (3) and right (2) temporals; both maxillae (2); mandible (3); right clavicle (3); left ilium (3); right acetabulum (2); thoracic vertebra fragments; proximal epiphysis (3) and remainder (2) of the left humerus; proximal epiphysis (3), proximal third (3), and remainder (2) of the right humerus; proximal epiphysis (3) of the left radius; proximal (3) and middle (3) thirds of the right radius; proximal epiphysis (2) and proximal third (3) of the left ulna; proximal epiphysis (3) and proximal third (3) of the right ulna; right greater multangular; right lesser multangular; and three metacarpals, side and digits undetermined.

All permanent teeth are present and in occlusion.

Enamel defects consist of linear horizontal pits on the mandibular left canine (5.2 mm), single pits on the maxillary left canine (3.1 mm) and maxillary right lateral incisor (6.0 mm), and discrete-boundary hypocalcification on the maxillary left (1.9 mm) and right (3.8 mm) third molars.

Preservation of the remains corresponds to weathering stage 3.

The extent of occlusal dental attrition, cranial suture closure, and skeletal degenerative changes suggest an age at death of 25 to 40 years. Skeletal robusticity suggests male sex.

The area of the alveolus associated with the maxillary right third molar displays a probable periodontal abscess, likely produced by infection rather than through carious lesions. Most of the mesial root surface of the molar, to about 2.7 mm from the CEJ, has been eroded by the disease process.

BURIAL 716.—FN: A coffin outline, nails, and wood were in association with this burial. No other artifacts were recovered.

The incomplete remains are of an adult, probably female. Bones present are the frontal (2), both parietals (3), occipital (2), left (3) and right (2) temporals, mandible (2), sacrum (3), left acetabulum (3), first two cervical vertebrae, one other cervical vertebra, two lumbar vertebrae, proximal thirds (3) of the humeri, proximal third (3) of the left ulna, and proximal epiphyses (3) and proximal thirds (3) of the femora.

All permanent teeth are present, in occlusion, except the third molars (congenital absence), maxillary right first premolar (lost antemortem), and maxillary left central incisor (postmortem loss).

Carious lesions are on the interproximal surfaces of, in the maxillary dentition, the first molars, right second premolar, left first premolar, left canine, left lateral incisor, and, in the mandibular dentition, the left first molar, and are on a smooth surface of the right second molar.

Enamel defects consist of discrete-boundary hypocalcification on the maxillary left second molar (n/a), maxillary first molars (n/a), mandibular left (3.2 mm) and right (3.2 mm) second molars, and diffuse-boundary hypocalcification (distances from CEJ unavailable) on the maxillary right second molar and the following mandibular left teeth: first molar, both premolars, canine, and both incisors.

Preservation of the remains corresponds to weathering stage 4.

The extent of occlusal dental attrition and cranial suture closure suggest an age at death of 17 to 24 years. Skeletal gracility suggests female sex.

BURIAL 717.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

The incomplete remains are of an adult, probably female. Bones present are the frontal (2), right parietal (2), both temporals (2), both zygomatics (3), left (3) and right (1) maxillae, right palatine (1), mandible (1), both clavicles (2), both scapulae (3), both ilia (2), left patella (2), all cervical vertebrae, nine thoracic vertebrae, two lumbar vertebrae, one right first rib, three left and five right ribs, all long bones (2), both calcanei, and both tali.

Permanent teeth present, in occlusion, are all maxillary teeth except the left canine and right central incisor, and from the mandible the premolars, canines, right lateral incisor, and central incisors. The mandibular molars were lost antemortem. The maxillary third molars and the mandibular second premolars are damaged.

Carious lesions are on the occlusal surface of the maxillary right second molar; interproximal surfaces of, in the maxillary dentition, the left first molar, premolars, canines, lateral incisors, left central incisor (two lesions), and, in the mandibular dentition, the left premolars, left canine, right lateral incisor, and central incisors (right with two lesions); and large surfaces of the maxillary third molars, maxillary left second molar, and mandibular right second premolar.

Preservation of the remains corresponds to weathering stage 4. Green staining and apparent wood are on the posterior side of the right scapula.

The extent of occlusal dental attrition, cranial suture closure, and skeletal degenerative changes suggest an age at death of 28 to 38 years. Skeletal gracility suggests female sex.

BURIAL 718.—FN: A coffin outline, nails, and wood were in association with this burial. No other artifacts were present.

The incomplete remains are of an adult female. Bones present are the clavicles (2); scapulae (3); left (3) and right (2) ilia; first cervical vertebra; one other cervical vertebra; six thoracic verte-

brae; first ribs; two left and five right other ribs; epiphyses (2) and diaphysis (3) of the left humerus; right humerus (2); left radius (3); right radius (2); left ulna (3); right ulna (2); proximal epiphysis (3) and proximal (3), middle (3), and distal (2) thirds and distal epiphysis (2) of the left femur; right femur (2); both tibiae (2); fragments of the fibulae; metacarpals; and tarsal bones.

Permanent teeth present, in occlusion, from the maxillae are the molars and left premolars, and from the mandible the left first molar, left premolars, canines, and lateral incisors.

A clump of light brown hair is present. Two pin fragments on the left parietal were in association with the hair. A radiograph revealed evidence of one large hairpin (hooked type) and two fragments of an apparent straight pin (Figure 113).

Preservation of the remains corresponds to weathering stage 4.

The extent of dental formation, epiphyseal fusion, and cranial suture closure suggest an age at death of 17 to 23 years. Skeletal gracility suggests female sex.

BURIAL 719.—FN: A coffin outline and nails were the only artifacts associated with this burial.

The incomplete remains are of an adult, probably female. Bones present are the frontal (3), both parietals (2), occipital (1), both temporals (2), both ilia (3), first cervical vertebra, proximal (3) and middle thirds (3) of the right humerus, proximal third (3) of the left radius, proximal (3) and middle (3) thirds of the left femur, distal epiphysis (2) of the right femur, proximal (3) and middle (3) thirds of the left tibia, and proximal third (3) of the right tibia.

The permanent maxillary left third molar is present but is not in occlusion. The following mandibular teeth were lost antemortem: left molars, premolars, and left canine.

The only tooth present displays carious lesions on the interproximal and root surfaces.



FIGURE 113.—Radiograph of hair with associated hairpin, burial 718.

The extent of occlusal dental attrition and tooth loss suggest an age at death of 40 to 75 years. Skeletal gracility suggests female sex.

BURIAL 720.—FN: A coffin outline and nails were associated with this burial. No other artifacts were recovered.

The incomplete postcranial remains are of an adult, probably female. Bones present are the right patella (2), vertebrae fragments, proximal (2) and middle (3) thirds of the left radius, proximal (3) and middle (3) thirds of the right radius, proximal (3) and middle (3) thirds of the ulnae, proximal epiphyses (1) and proximal (2) and middle (2) thirds of the femora, middle thirds (2) of the tibiae, proximal third of the left fibula (3), left talus, and one left fifth metacarpal.

All mandibular teeth, except the left canine (postmortem loss) were lost antemortem.

Hair and apparent coffin nails are also present. Preservation of the remains corresponds to weathering stage 4.

Antemortem tooth loss, the extent of cranial suture closure, and skeletal degenerative changes suggest an age at death of 50 to 80 years. Skeletal gracility suggests female sex.

Moderate hyperostosis frontalis interna is present. A slight abnormal deposit of bone is on the posterior femoral head.

BURIAL 721.—FN: Nails and copper pins recovered from the upper cervical region were the only associated artifacts.

The incomplete remains are of an adult male. Bones present are the frontal (2); both parietals (2); occipital (2); both temporals (2); right zygomatic (2); both maxillae (2); both palatines (1); mandible (2); both clavicles (2); sternum (1); both scapulae (3); both ilia (2); left (3) and right (2) ischia; left (2) and right (1) patellae; all cervical and thoracic vertebrae; fragments of the lumbar vertebrae; left first rib; seven left and five right other ribs; humeri (2) minus the distal epiphyses; left radius (2); distal epiphysis (1) and diaphysis (2) of the right radius; epiphyses (3) and diaphysis (2) of the left ulna; proximal (1), middle (2), and distal (1) thirds and distal epiphysis (2) of the right ulna; proximal epiphysis (1) and proximal (2), middle (1), and distal (2) thirds and distal epiphysis (2) of the left femur; proximal epiphysis (1) and remainder (2) of the right femur; proximal epiphysis (3) and remainder (2) of the right tibia; distal third (3) and distal epiphysis (2) of the right fibula; all carpals except one pisiform; metacarpals; eight proximal hand phalanges; four middle hand phalanges; and one distal hand phalanx.

Permanent teeth present, in occlusion, are the canines; from the maxillae the left first premolar (damaged), right lateral incisor (damaged), and central incisors; and from the mandible the right first molar, left second premolar (damaged), first premolars, and lateral incisors (damaged).

Carious lesions are on the interproximal surfaces of the maxillary left (two lesions) and right canines and large areas of the maxillary left first premolar, maxillary right lateral incisor, and mandibular right first molar. Alveolar abscesses are in the mandibular dentition on the right first molar, right first premolar, and left lateral incisor.

Preservation of the remains corresponds to weathering stage 3. Copper staining is on the right navicular; right greater multangu-

lar; distal end of a proximal hand phalanx; dorsal spine of the second cervical vertebra, with adherent desiccated soft tissue or fabric; right ventral surface of a lumbar vertebra; a molar root; and sacrum.

The extent of occlusal dental attrition, cranial suture closure, and skeletal degenerative changes suggest an age at death of 50 to 80 years. Skeletal robusticity and pelvic morphology suggest male sex.

The surfaces of articulating centra between the sixth and seventh cervicals are covered with irregular new-bone formation with slight osteophytic lipping. Arthritic changes are also apparent on the distal radius and glenoid of the right scapula.

BURIAL 722.—FN: A coffin outline, wood, nails, and copper earrings, one at each temporal, were in association with this burial. No other artifacts were recovered.

The incomplete remains are of an adult female. Bones present are the frontal (1); both parietals (2); occipital (2); both temporals (1); mandible (1); left (3) and right (2) clavicles; manubrium (2); sacrum (3); left scapula (3); left (3) and right (2) acetabula; left (3) and right (1) patellae; first two cervical vertebrae; one other cervical vertebra; three thoracic vertebrae; three lumbar vertebrae; diaphyses (2) of the humeri; distal epiphysis (2) and diaphysis (2) of the left radius; proximal (2), middle (2), and distal (1) thirds and distal epiphysis (1) of the right radius; left ulna (2); proximal epiphysis (2) and proximal (2), middle (1), and distal (1) thirds of the right ulna; left femur (2) minus the distal epiphysis; right femur (2); left tibia (2) minus the distal epiphysis; right tibia (2) minus the proximal epiphysis; distal epiphysis (2) of the left fibula; diaphysis (2) of the right fibula; left triquetral; left capitate; left hamate; left third metacarpal; three other left

metacarpals, digits undetermined; both calcanei; both tali; and metatarsal fragments.

All permanent teeth are present and in occlusion (the maxillary right second molar is damaged) except the mandibular right third molar (impacted; Figures 114, 115).

Carious lesions are on the occlusal surfaces of the maxillary right first and second molars and mandibular second molars; buccal pits of the mandibular first molars; interproximal surfaces in maxillary teeth on the left second molar, left first premolar, left lateral incisor, and central incisors; and large surface of the maxillary left second molar.

A bun-shaped mass of blond hair is also present (Figure 116). A radiograph of the hair showed it arranged in patterned coils.

Preservation of the remains corresponds to weathering stage 3. Apparent copper staining is on the right mastoid, superior aspect of the manubrium, midpoint of the right clavicle, and distal right radius.

The extent of occlusal dental attrition, cranial suture closure, and skeletal degenerative changes suggest an age at death of 25 to 30 years. Skeletal gracility suggests female sex.

BURIAL 723.—FN: A coffin outline, coffin floor staining, and nails were in association with this burial. No other artifacts were present. The coffin was sized for an adult.

No human remains were recovered.

BURIAL 724.—FN: A coffin outline and associated artifacts of nails, fabric, porcelain buttons, and cloth-covered metal buttons were in the burial.

The incomplete remains are of an adult, probably male. Bones present are the left (2) and right (1) parietals; occipital (2); both temporals (1); both maxillae (2); mandible (2); left acetabulum (3); right patella (2); vertebrae fragments; diaphysis (2) of the



FIGURE 114.—Impacted mandibular third molar, burial 722.

left humerus; proximal epiphysis (3) and proximal (3), middle (3), and distal (2) thirds of the right humerus; proximal third (3) of the right radius; proximal epiphysis (2) and proximal third (2) of the left ulna; both femora (2); and proximal epiphysis (2) of the right tibia.

Permanent teeth present, in occlusion, from the maxillae are the right second molar, premolars (left second premolar damaged), left canine, left lateral incisor, and right central incisor, and from the mandible the right canine, right lateral incisor, and left incisors.



FIGURE 115.—Radiograph of impacted mandibular third molar, burial 722.



FIGURE 116.—Bun of hair, burial 722.

Carious lesions are on the interproximal surface of the maxillary right second molar, most of the maxillary left second premolar, and root of the maxillary right first premolar. Alveolar abscesses are associated with the maxillary left second premolar and maxillary right first premolar.

Two metal artifacts (Figure 117) were with the skeletal remains. Radiographs revealed that one is a two-pronged buckle (Figure 118), measuring 34×27 mm, and the other is a circular metal object, measuring 23 mm in diameter.

Preservation of the remains corresponds to weathering stage 3.

The extent of occlusal dental attrition, cranial suture closure, and antemortem dental loss suggest an age at death of 45 to 60 years. Skeletal robusticity suggests male sex.

BURIAL 725.—FN: The foundation to the church addition disturbed the southern end of the coffin in the region of the distal end of the lower-leg bones. A coffin outline and nails were associated with the burial. No other artifacts were recovered.

The incomplete remains are of an adult male. Bones present are the frontal (2); both parietals (2); occipital (1); both temporals (2); mandible (2); both clavicles (3); sacrum (3); both scapulae (3); both ilia (3); both ischia (3); left (3) and right (1) patellae; vertebrae fragments; distal epiphysis (2), distal third (2), and remainder (3) of the left humerus; distal third (1), distal epiphysis (1), and remainder (2) of the right humerus; distal epiphysis (2), distal third (2), and remainder (1) of the left radius; proximal third (2) and remainder (1) of the right radius; middle (2) and distal (2) thirds and remainder (1) of the left ulna; proximal third (1), proximal epiphysis (1), and remainder (2) of the right ulna; proximal epiphysis (1) and remainder (2) of the left femur; distal epiphysis (1) and remainder (2) of the right femur;

distal epiphysis (1), distal third (1), and remainder (2) of the left tibia; proximal (2) and middle thirds (2) and remainder (1) of the right tibia; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (1) of the left fibula; right fibula (1); right hand navicular; both lunates; left triquetral; both greater multangulars; right lesser multangular; left first metacarpal; both second metacarpals; left third metacarpal; right fourth metacarpal; one other metacarpal; one proximal hand phalanx; and one distal hand phalanx.

Permanent teeth present, in occlusion, are the maxillary right premolars, maxillary left second premolar, and all mandibular teeth except the central and right lateral incisors. The mandibular left lateral incisor is damaged.

Carious lesions are on the interproximal surfaces of the maxillary left second premolar and mandibular right first premolar and smooth surface of the mandibular left second molar.

Preservation of the remains corresponds to weathering stage 2.

The extent of occlusal dental attrition and cranial suture closure suggest an age at death of 23 to 27 years. Skeletal robusticity suggests male sex.

Maximum femur length is 45.0 cm, suggesting a living stature of about 168.5 cm (5 ft 6.4 in).

The right humerus displays a well-remodeled, healed complete fracture of the diaphysis (Figure 119), immediately inferior to the midshaft. Radiographs revealed disruption of the original cortex, slight dislocation of the segments, and considerable abnormal thickening of the affected area (Figure 120).

The right femur presents areas of slight abnormal thickening on the linea aspera, immediately inferior to the midshaft and me-



FIGURE 117.—Two metal artifacts, burial 724.

dial surface of the superior third of the diaphysis. These areas likely reflect activity-related localized trauma.

A radiograph of the right tibia revealed no lines of increased density.

BURIAL 726.—FN: A coffin outline and nails were in association with this burial. No other artifacts were recovered.

The incomplete remains are of a subadult. Bones present are cranium fragments; mandible (2); left ilium (3); six cervical vertebrae; proximal (2), middle (2), and distal (3) thirds of the left humerus; middle (3) and distal (2) thirds of the right humerus; middle third (3) of the right radius; middle third (1) of the right ulna; distal epiphyses (2) and diaphyses (2) of the femora; distal epiphyses (1) and distal (3), middle (2), and proximal (3) thirds of the tibiae; middle third (3) of the left fibula; middle (1) and distal (2) thirds of the right fibula; both calcanei; both tali; right cuboid; and other fragments of foot bones.

All permanent teeth are present, in occlusion, except the third molars and maxillary right lateral incisor.

Carious lesions are on the interproximal surfaces of, in maxillary teeth, the right first molar, left second premolar, first premolars, right canine, and, in mandibular teeth, the left first molar.

Preservation of the remains corresponds to weathering stage 4. Green staining is on a cranial fragment that has associated straight brown hair.

The extent of dental formation and epiphyseal closure suggests an age at death of 13 to 14 years.

BURIAL 727.—FN: The southern end of the grave had been disturbed by a backhoe. A coffin outline, wood, fabric, and plain and decorative nails were in association with this burial. Other artifacts recovered were escutcheons, white porcelain buttons, hooks and eyes, miscellaneous copper fragments from the mid-section of the coffin, and copper rickrack from sections of the coffin's perimeter. The rickrack was on fabric adhered to the coffin wood.

Present are one thoracic fragment, other skeletal fragments, and the following deciduous maxillary teeth, not in occlusion, of an infant: left first molar, left canine, and left central incisor.

Preservation of the remains corresponds to weathering stage 5.

The extent of dental formation suggests an age at death of newborn to 6 months.

BURIAL 728.—FN: The southern portion of the grave had been disturbed and the only artifacts recovered were nails.

The incomplete remains are of an adult, likely female. Bones present are the frontal (2), both parietals (2), occipital (3), both temporals (1), mandible (3), right ilium (3), middle (2) and distal (3) thirds of the right humerus, middle (2) and distal (2) thirds of the left radius, middle third (2) of the right radius, and middle (2) and distal (2) thirds of the right ulna.

The permanent maxillary right third molar is present and in occlusion.

Preservation of the remains corresponds to weathering stage 4.

The extent of cranial suture closure and occlusal dental attrition suggest an age at death of 20 to 30 years. Skeletal gracility suggests female sex.

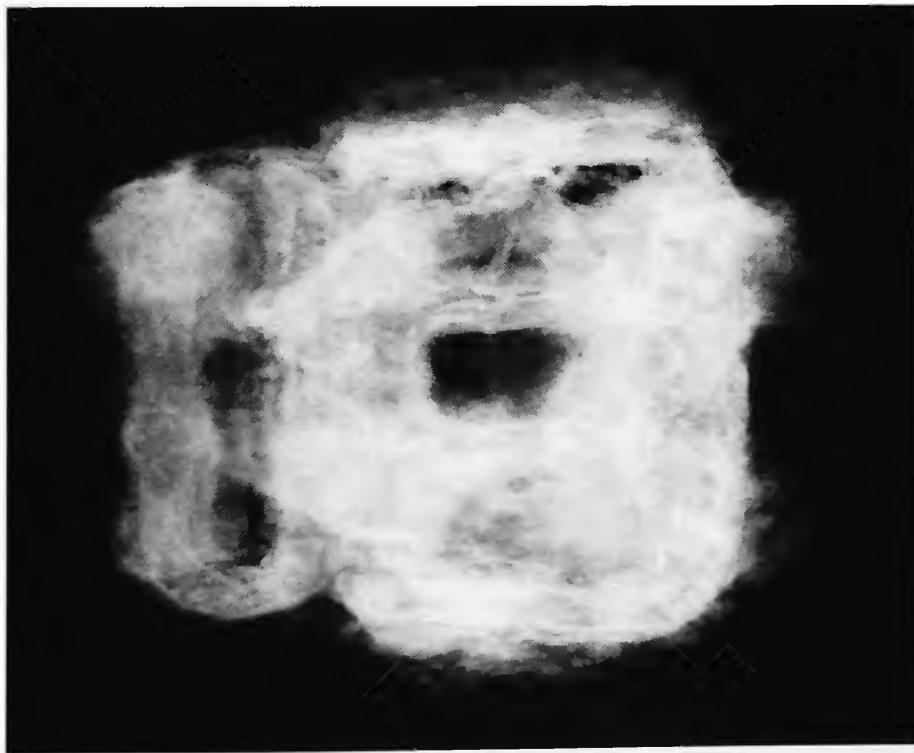


FIGURE 118.—Radiograph of buckle, burial 724.



FIGURE 119.—Well-remodeled healed fracture of right humerus, burial 725.

The parietals of this individual are especially thick.

BURIAL 729.—FN: A coffin outline and nails were in association with this burial. A sherd of red-clay ceramic was found in the grave fill.

The incomplete remains are of an adult female. Bones present are the left (2) and right (1) parietals; occipital (2); both temporals (1); right zygomatic (1); mandible (2); left clavicle (2); left (3) and right (3) scapula; right patella (2); first two cervical vertebrae; proximal epiphysis (2), proximal third (3), and remainder of the diaphysis (2) of the left humerus; right humerus (2) minus the distal epiphysis; proximal third (3) of the right radius; proximal epiphysis (1) and proximal third (2) of the left ulna; proximal third (3) of the right ulna; proximal epiphysis (1), distal epiphysis (2), and remainder (2) of the left femur; proximal epiphysis (1), distal epiphysis (3), and remainder (2) of the right



FIGURE 120.—Radiograph of well-remodeled healed fracture of right humerus, burial 725.

femur; and proximal epiphysis (3) and proximal diaphysis (3) of the left tibia.

Permanent teeth present, in occlusion, from the maxillae are the left third molar and right lateral incisor, and from the mandi-

ble the left first molar (damaged), left (damaged) and right first premolars, canines, and incisors.

Carious lesions are on the interproximal surfaces of the maxillary right lateral incisor and mandibular left and right (two lesions) first premolars and on a large surface of the mandibular left first molar.

Preservation of the remains corresponds to weathering stage 5. Black staining is on all the remains.

The extent of cranial suture closure, occlusal dental attrition, and arthritic changes suggest an age at death of 30 to 40 years. Skeletal gracility suggests female sex.

BURIAL 730.—FN: Nails and a porcelain button near the right hand were the only associated artifacts.

The incomplete remains are of an adult male. Bones present are the calvarium (1); right zygomatic (1); left (1) and right (2) maxillae; both palatines (1); mandible (3); both clavicles (2); sacrum (3); both scapulae (3); both ilia (3); first two and two other cervical vertebrae; one thoracic vertebra; four lumbar vertebrae; middle (2) and distal (2) thirds and distal epiphysis (3) of the left humerus; proximal epiphysis (3) and middle (2) and distal (2) thirds of the right humerus; proximal epiphysis (1) and remainder (2) of the left radius; distal epiphysis (2) and remainder (1) of the left ulna; epiphyses (2) and remainder (1) of the right ulna; diaphysis (2) of the left femur; distal epiphysis (2) and remainder (1) of the right femur; diaphysis (2) of the left tibia; proximal (2) and middle thirds (3) of the right tibia; proximal (2) and middle thirds (2) of the right fibula; all carpals but the left triquetral and the pisiforms; first three metacarpals; right fourth metacarpal; one other metacarpal, side and digit undetermined; six proximal hand phalanges; and fragments of the foot bones.

The permanent maxillary right canine is present and in occlusion. The right molars, right second premolars, and right mandibular first premolar were lost antemortem.

The observable tooth displays a large carious lesion.

Preservation of the remains corresponds to weathering stage 3.

The extent of tooth loss, cranial suture closure, and skeletal degenerative changes suggest an age at death of more than 50 years. Skeletal robusticity suggests male sex.

Arthritic conditions are spicular bone formation on the joints of the lumbar vertebrae and especially pronounced osteophyte formation on two cervical vertebrae.

BURIAL 731.—FN: Nails and a tortoise-shell comb recovered from the top of the cranium were the only associated artifacts.

The incomplete remains are of an adult female. Bones present are the frontal (3); left (2) and right (3) parietals; occipital (1); left (1) and right (3) temporals; right clavicle (3); right ischium (3); middle (2) and distal (2) thirds of the left humerus; middle (3) and distal (2) thirds of the right humerus; middle third (3) of the left radius; proximal epiphysis (3) and proximal third (3) of the right radius; middle third (2) of the left ulna; proximal epiphysis (2) and proximal (2) and middle thirds (3) of the right ulna; proximal epiphyses (1) and remainder (2) of both femora; proximal epiphysis (3) and remainder (2) of the left tibia; right tibia (2); middle (2) and distal (2) thirds and dis-

tal epiphysis (2) of the left fibula; proximal epiphysis (3), diaphysis (1), and distal epiphysis (2) of the right fibula; both calcanei; and both tali.

Permanent teeth present, in occlusion, from the maxillae are the right third molar, left first premolar, right canine, left incisors, and right lateral incisor (damaged), and from the mandible the left first molar, left (damaged) and right canines, left (damaged) and right lateral incisors, and central incisors.

Carious lesions are on the interproximal surfaces of the maxillary right canine (two lesions), maxillary left central incisor, and the following mandibular teeth: left first molar, left lateral incisor, and central incisors.

Enamel defects consist of linear horizontal grooves on the maxillary right canine (5.1 mm) and maxillary left central incisor (5.2 mm).

Preservation of the remains corresponds to weathering stage 5. Light brown hair is present.

The extent of occlusal dental attrition and skeletal degenerative changes suggest an age at death of 35 to 45 years. Skeletal gracility suggests female sex.

A large, dark restoration measuring about 3.5×4.5 mm (Figures 121, 122) is in the distal crown of the mandibular left first molar. A sample of this restoration was analyzed at the Federal Bureau of Investigation laboratories (Dennis Ward, Materials Analysis Unit) using energy-dispersive spectrometry in a scanning electron microscope (excitation voltage of 25 kV). This analysis revealed the elemental composition to be primarily tin.

Enthesophytes are on the distal right tibia and the distal aspects of both fibulae.

BURIAL 732.—FN: A coffin outline and plain and decorative nails were in association with this burial. No other artifacts were recovered. The wall of the church abutted the burial on the individual's right side.

The incomplete remains are of an adult male. Bones present are both parietals (3); occipital (2); both temporals (2); left (2) and right (3) maxilla; mandible (3); left clavicle (3); sacrum (3); both scapulae (3); right ilium (2); both acetabula (3); first and second cervical vertebrae; two other cervical vertebrae; four thoracic vertebrae; one lumbar vertebra; proximal epiphysis and proximal and middle thirds (2) of the left humerus; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the right humerus; middle third (3) of the left radius; middle third (2) of the right radius; middle third (3) of the left ulna; proximal epiphysis (3) and proximal (3) and middle thirds (3) of the right ulna; left femur (2); diaphysis (2) of the right femur; diaphysis (2) of the left tibia; proximal epiphysis (2) and diaphysis (2) of the right tibia; proximal (2) and middle thirds (3) of the right fibula; one first metacarpal, side undetermined; right third and fourth metacarpals; three other metacarpals, side and digits undetermined; right calcaneus; and right talus.

Permanent teeth present, in occlusion, are the third molars, second molars, first premolars, canines, incisors, maxillary left second premolar, and mandibular second molars. The maxillary left first molar and the mandibular first molars were lost antemortem.

One carious lesion is on the occlusal surface of the mandibular left third molar.

One enamel defect is present, a linear horizontal groove on the maxillary right central incisor (3.7 mm).

Preservation of the remains corresponds to weathering stage 3. Green staining is on a parietal fragment, which has associated desiccated soft tissue and light brown hair about 11.5 cm long. A radiograph of this material revealed the apparent point end of a straight pin.

The extent of occlusal dental attrition and epiphyseal union suggests an age at death of 22 to 27 years. Skeletal robusticity suggests male sex.

The left femur displays a well-remodeled healed fracture of the superior third of the diaphysis, with medial dislocation of the superior segment and marked medial lateral bowing (Figures 123, 124). The extensive remodeling and estimate of age at death suggest that the fracture occurred in childhood.

BURIAL 733.—FN: Nails were the only associated artifacts.

The incomplete remains are of a probable male adult. Bones present are the frontal (2); both parietals (3); occipital (2); left (2) and right (1) temporals; right zygomatic (2); mandible (3); left ilium (3); left (3) and right (2) patellae; vertebrae fragments; middle (3) and distal (3) thirds of the left humerus; proximal (3), middle (2), and distal (2) thirds of the right humerus; proximal (2), middle (1), and distal (2) thirds of the left radius; diaphysis (2) of the right radius; epiphysis (3) and proximal (2), middle (2), and distal (3) thirds of the left ulna; diaphysis (2) of the right ulna; proximal epiphysis (2), diaphysis (2), and distal epiphysis (3) of the left femur; diaphysis (2) and distal epiphysis (3) of the right femur; proximal (2), middle (2), and distal (1) thirds of the left tibia; diaphysis (2) of the right tibia; middle (2) and distal (1) thirds and distal epiphysis (2) of the left fibula; proximal (2), middle (1), and distal (2) thirds of the right fibula; one first metacarpal; one other metacarpal, side undetermined; two proximal hand phalanges; left calcaneus; both tali; left first cuneiform; left foot navicular; and all left metatarsals.

Permanent teeth present, in occlusion, from the maxillae are the right first molar and left second molar, and from the mandible the right lateral incisor, left second premolar, and left second molar. The mandibular left third molar was lost antemortem.

Carious lesions are on the interproximal surfaces of the maxillary right first molar and mandibular left second molar and most of the maxillary left second molar.

Preservation of the remains corresponds to weathering stage 4. Green staining is on the distal fifth of the anterior surface of the right tibia, and red staining is on the anterior left femur.

Cranial suture closure and occlusal dental attrition suggest an age at death of 40 to 55 years. Skeletal robusticity suggests male sex.

Periosteal new bone deposits are on the anterior surface of the proximal half of the diaphysis of the right tibia. The corresponding area of the right fibula shows similar irregularity.

The mastoid process of the right temporal displays a smooth-walled cavitating lesion (Figure 125) of about 6 × 10 mm. The floor of this lesion displays an opening (Figure 126) about 3 mm



FIGURE 121.—Tin filling of mandibular left first molar, burial 731.



FIGURE 122.—Radiograph of tin filling of mandibular left first molar, burial 731.



FIGURE 123.—Well-remodeled healed fracture of the left femur, burial 732.

in diameter that extends into the petrous portion. This condition likely represents chronic infection of the mastoid process, probably with associated external drainage at this site.

BURIAL 734.—FN: A coffin outline and nails were in association with this burial, which had been disturbed in the southern half by the church's foundation. The coffin appeared to be sized for an adult.

No human remains were recovered.

BURIAL 735.—FN: A coffin outline, nails, a bolt, and a glass fragment were in association with this burial, which had been disturbed in the southern half by the church's foundation. The coffin appeared to be sized for an adult.



FIGURE 124.—Radiograph of the well-remodeled healed fracture of the left femur, burial 732.

No human remains were recovered.

BURIAL 736.—FN: A coffin outline, wood, and nails were the only associated artifacts.

The incomplete remains are of an adult male. Bones present are the frontal (2); both parietals (1); occipital (1); left (1) and right



FIGURE 125.—Lesion of right mastoid process, burial 733.



FIGURE 126.—View of lesion of right mastoid process, burial 733, showing internal opening.

(2) temporals; left zygomatic (1); left (2) and right (3) maxillae; mandible (2); left scapula (2); right ilium (3); left patella (2); first and second cervical vertebrae; proximal epiphysis (2) and proximal (2), middle (2), and distal (3) thirds of the left humerus; epiphyses (2) and diaphysis (3) of the right humerus; proximal epiphysis (3) and proximal third (3) of the right radius; proximal epiphysis (1) and proximal (2) and middle (3) thirds of the right ulna; diaphyses (2) and distal epiphyses (2) of the femora; proxi-

mal epiphysis (2), proximal third (2), and remainder (1) of the left tibia; right tibia (2); middle (3) and distal (2) thirds and distal epiphysis (1) of the left fibula; distal third (3) and distal epiphysis (2) of the right fibula; both calcanei; both tali; left cuboid; left first cuneiform; right second cuneiform; both third cuneiforms; both foot naviculars; right first metatarsal; left second metatarsal; both third, fourth, and fifth metatarsals; six proximal foot phalanges; four middle foot phalanges; and two distal foot phalanges.

Permanent teeth present, in occlusion, from the maxillae are the second molars, first molars, left premolars, left canine, and left incisors, and from the mandible all teeth except the right first molar (lost antemortem).

Preservation of the remains corresponds to weathering stage 5. A slight notch in the maxillary left lateral incisor may represent pipewear. Some of the teeth are stained in a manner suggestive of tobacco use.

Cranial suture closure, occlusal dental attrition, and skeletal degenerative changes suggest an age at death of 35 to 45 years. Skeletal robusticity suggests male sex.

Enthesophytes are on the right tibia. The distal and middle foot phalanges are fused (Figure 127). The distal foot phalanx displays osteophyte-type extensions (Figure 128).

The cranium displays a cavitating ovoid lesion, about 6×11 mm, in the right parietal. The alteration is smooth-walled and lacks a sclerotic margin. The endocranial surface in the area of the sagittal suture displays irregularity, consisting of two additional ovoid alterations that do not completely penetrate the bone surfaces (seen radiographically), areas of new bone deposits, and general thickening (Figure 129).

A radiograph of the left distal tibia presented no clear evidence for lines of increased density.

BURIAL 737.—FN: Only a grave outline and a projected outline of a coffin were present. No artifacts were recovered.

No human remains were recovered.

BURIAL 738.—FN: A coffin outline, wood, and nails were in association with this burial, and one copper pin was found in the northern end of the coffin.

The incomplete remains are of an infant. Bones present are the occipital (2), both temporals (2), right clavicle (3), first and second cervical vertebrae, four other cervical vertebrae, two thoracic vertebrae, and proximal third of the left femur (3).

Deciduous teeth present, not in occlusion, are the first molars, canines, maxillary second molars, and mandibular left second molar.

Permanent teeth present, not in occlusion, are the maxillary first molars and mandibular left first molar.

Preservation of the remains corresponds to weathering stage 5. Green, apparent copper staining is on a cranial fragment. A copper-stained straight pin with fine, straight brown hair attached was also present (Figure 130). Radiographs of this material revealed that the pin is complete but broken and has a spherical end.

The extent of dental formation suggests an age at death of 1 to 1.3 years.

BURIAL 739.—FN: A coffin outline, wood from the coffin lid, and nails were in association with this burial. Two coins were found along the east side of the coffin in the southern end.

The incomplete remains are of a child. Bones present are the occipital (2), parietal fragments, both temporals (2), left maxilla (3), proximal epiphysis (2) and proximal (2) and middle thirds (2) of the left femur, and middle third (3) of the left tibia.

Deciduous teeth present, in occlusion, are the maxillary molars, mandibular second molars, mandibular left first molar, and mandibular left canine.

Permanent teeth present, not in occlusion, are the second molars, second premolars, first premolars, canines, lateral incisors, and mandibular central incisors.



FIGURE 127.—Fused distal and middle foot phalanges, burial 736.



FIGURE 128.—Osteophyte-type bony extensions on the distal foot phalanx, burial 736.

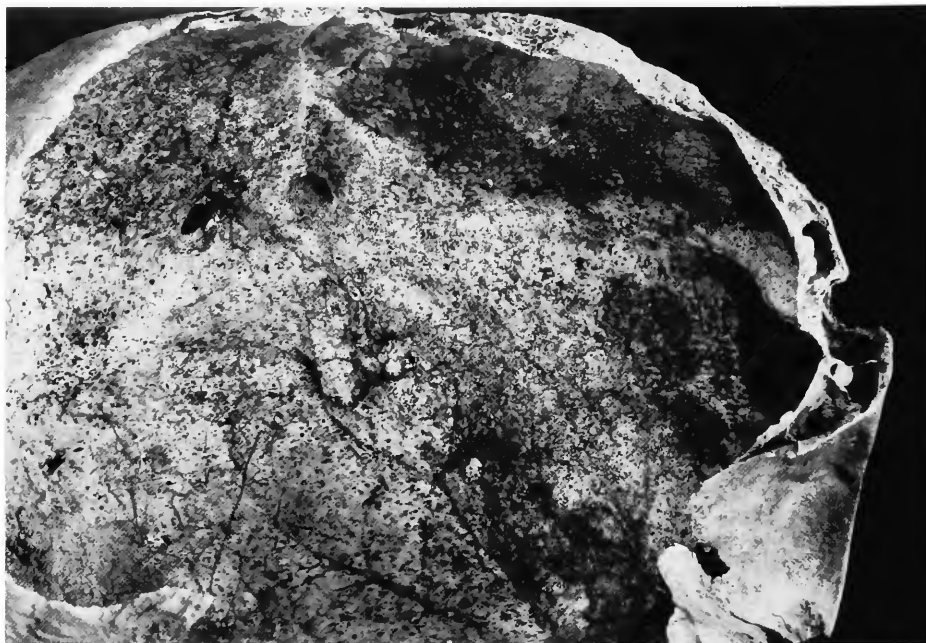


FIGURE 129.—Abnormalities on endocranial surface, burial 736.

Enamel defects (two in each tooth) in the permanent dentition are linear horizontal grooves in the maxillary left (3.4 mm, 5.4 mm) and right (3.9 mm, 5.5 mm) canines and mandibular left (4.6 mm, 6.7 mm) and right (4.5 mm, 6.4 mm) canines.

Preservation of the remains corresponds to weathering stage 5. Green, apparent copper staining is on the anterior proximal left femoral head area. Blond hair is present.

The extent of dental formation suggests an age at death of 5.5 to 7 years.

BURIAL 740.—No field notes are available for this burial.

The proximal (3), middle (2), and distal (3) thirds of a right femur of a child about 3 to 6 years old are present. Preservation of the remains corresponds to weathering stage 4.

BURIAL 741.—FN: The skeletal remains had been disturbed below the femoral region by the church's foundation. A coffin outline, with fabric around sections of the perimeter and staining from the coffin floor, and nails were in association with this burial.

The incomplete remains are of an adult, probably male. Bones present are the frontal (2), both parietals (2), occipital (2), right temporal (2), mandible (2), right ilium (3), middle third (3) of the left humerus, middle (3) and distal (2) thirds of the right humerus, proximal (2) and middle thirds (3) of the left radius, proximal third (2) of the left ulna, proximal epiphysis (2) and proximal (2) and middle (3) thirds of the left femur, and proximal epiphysis (3) and remainder (2) of the right femur.

Permanent teeth present, in occlusion, from the maxillae are the left second molar, right first molar, and right premolars, and from the mandible the right third molar, right second molar, right second premolar, and right first premolar (damaged).

Carious lesions are on the occlusal surfaces of the maxillary left second molar (two lesions) and mandibular right second

molar and the interproximal surface of the mandibular right second molar.

Preservation of the remains corresponds to weathering stage 5. Green staining is on the anterior distal right humerus.

Occlusal dental attrition and cranial suture closure suggest an age at death of 25 to 35 years. Skeletal robusticity suggests male sex.

BURIAL 742.—FN: Parts of this burial had been heavily disturbed. Nails and wood were recovered from the northern, undisturbed section of the burial. No other artifacts were present.

The incomplete remains are of an adult, probably male. Bones present are the frontal (2), right parietal (2), occipital (2), both temporals (2), right zygomatic (1), both maxillae (3), both palatines (3), and mandible (3).

Permanent teeth present, in occlusion, from the maxillae are the right third molar, second molars, left first molar, left second premolar, first premolars, right canine, and left central incisor, and from the mandible the right molars and right premolars.

Cariou lesions are on the interproximal surfaces of the maxillary left second molar, maxillary left first molar (two lesions), maxillary left first premolar, maxillary right canine, and mandibular right molars; smooth surfaces of the mandibular right second molar (two lesions) and mandibular right first molar; and large surface of the maxillary right first premolar. An alveolar abscess is in association with the maxillary right lateral incisor.

Preservation of the remains corresponds to weathering stage 4.

The extent of occlusal dental attrition, cranial suture closure, and skeletal degenerative changes suggest an age at death of 50 to 60 years. Skeletal robusticity suggests male sex.

BURIAL 743.—FN: This burial had been disturbed in and below the innominate region. A coffin outline and nails were in association with it.

The incomplete remains are of an adult, probably female. Bones present are the frontal (1); both parietals (2); occipital (1); both temporals (2); left zygomatic (1); mandible (2); both scapulae (3); first and second cervical vertebrae; first and second left rib; proximal epiphysis (2) and proximal (3), middle (1), and distal (2) thirds and distal epiphysis (3) of the left humerus; proximal epiphysis (2) and diaphysis (3) of the right humerus; proximal epiphysis (2) and middle third (2) of the left radius; proximal epiphysis (1) and proximal third (2) of the left ulna; and one proximal hand phalanx.

All permanent mandibular teeth were lost antemortem.

Preservation of the remains corresponds to weathering stage 4.

Tooth loss and cranial suture closure suggest an age at death of 35 to 50 years. Skeletal gracility suggests female sex.

BURIAL 744.—FN: Nails were the only associated artifacts.

The incomplete remains of an adult male. Bones present are the frontal (2); other bones of the calvarium (1); right zygomatic (1); both maxillae (1); both palatines (1); mandible (2); left (3) and right (1) clavicles; left (1) and right (2) ilia; both patellae (1); first two cervical vertebrae; four other cervical vertebrae; four thoracic vertebrae; three lumbar vertebrae; proximal epiphysis (3) and remainder (2) of the left humerus; proximal (2) and middle (3) thirds of the right humerus; proximal epiphysis (1) and proximal (2), middle (1), and distal (2) thirds and distal epiphysis (2) of the left radius; middle (2) and distal (2) thirds of the right radius; diaphysis (2) of the left ulna; middle (2) and distal (2)

thirds of the right ulna; proximal (2), middle (1), and distal (1) thirds and distal epiphysis (2) of the left femur; right femur (2) minus the distal epiphysis; diaphysis (2) of the left tibia; proximal epiphysis (3) and proximal (2), middle (2), and distal (3) thirds of the right tibia; middle (2) and distal (1) thirds and distal epiphysis (1) of the left fibula; five right metacarpals; one other metacarpal, side and digit undetermined; four proximal hand phalanges; left talus; and left foot navicular.

Permanent teeth present, in occlusion, are the left second molars, left second premolars, canines, and right central incisors, and from the mandible the right second molar, right first molar, left first premolar, right premolars, and left incisors. Lost antemortem from the maxillae were the left third molar, first molars, right second premolar, first premolars, and lateral incisors, and from the mandible the left third molar and left first molar.

Carious lesions are on the occlusal surface of the mandibular left second molar; interproximal surfaces of the maxillary left second molar (two lesions) and maxillary left second premolar; cervical area of the maxillary left second molar, mandibular right first molar, and mandibular first premolar; and roots of the mandibular left premolars. Alveolar abscesses are associated with the maxillary lateral incisors.

One enamel defect is present, a linear horizontal groove on the maxillary left second molar (3.0 mm).

Preservation of the remains corresponds to weathering stage 3.

Occlusal dental attrition, cranial suture closure, and skeletal degenerative changes suggest an age at death of 35 to 50 years. Skeletal robusticity suggests male sex.

Remains from Disturbed Contexts

The following list refers to small lots of remains that were found in disturbed contexts. The numbers refer to those on the individual containers (bags). If information is provided about the recovery site, then it is included in the list as well. All remains are of human adult origin unless otherwise indicated. Other than this listing, they are not included in the analysis.

- 5288 Found in backhoe trench north of fence by Shirley; large head of a femur.
- 5295 Nonhuman bone.
- 5779 S back dirt pile B (associated with 5325); bone likely of nonhuman origin.
- 5306 Found in backhoe trench by Shirley, unknown context; large distal femur fragment.
- 5318 N back dirt/screen; humerus, clavicle, mandible, possible radius, and hand bones, all of large size.
- 5327 N backhoe, pile B; possible coffin nails and the head of a femur.
- 5328 S backhoe pile B; two tibia diaphyses, one cervical vertebra, cranium fragments.
- 5329 N backhoe pile A; cranium fragments.
- 5330 N backhoe, dirt pile A; left proximal femur lacking the head.
- 5331 N backdirt pile A; cranium fragments of a child; clavicle fragment.
- 5332 N backhoe dirt pile A; ilium fragment.



FIGURE 130.—Straight pin with hair attached, burial 738.

- 5333 N backhoe pile A; heads (very large) of the left and right femora, left distal humerus, right ulna, and finger bones.
- 5334 N backhoe dirt pile A; fragments of the cranium and vertebrae.
- 5335 N backhoe pile A; two femoral midshaft fragments and two fragments of the cranium.
- 5336 N backhoe pile 6A fill; left maxilla fragment with first premolar, fragment of a child's frontal, distal humerus fragment, and nearly complete humerus more than 32.3 cm long.
- 5337 N backhoe pile A; cervical vertebra arch.
- 5338 N backhoe pile A; the second cervical vertebra.
- 5339 N backhoe pile A; one cranium fragment.
- 5340 N backhoe pile A; left temporal with green staining on the mastoid, head of a humerus, maxillary right first molar, and maxillary left central incisor with an interproximal carious lesion.
- 5341 N backdirt pile A; cranium fragments (basilar and temporal) and the glenoid area of a scapula.
- 5342 N backhoe pile A; right parietal.
- 5343 N backhoe pile A; midshaft of tibia.
- 5344 N backhoe dirt pile A; parietal fragment.
- 5345 N backhoe pile A; distal third of femur.
- 5346 N backhoe dirt pile A; cranium fragments.
- 5347 N backhoe pile A; diaphysis of a humerus.
- 5348 N backhoe pile A; left maxilla with the second premolar through the third molar (hypocalcification of third molar) of a young adult.
- 5349 N backhoe pile A; occipital fragment.
- 5350 N backhoe pile A; right humerus and ulna diaphyses, second cervical vertebra, and rib fragment.
- 5351 N backhoe dirt pile A; mandibular right second or third molar.
- 5352 N backhoe pile A; nonhuman bone.

Appendix 1

The People of Voegtly Cemetery: The Burial Records

Information from the Voegtly Cemetery records about specific individuals interred in the cemetery, translated by Dzodin and Luff (1989), is present below in tabular form. Not all information could be included because of space constraints, but the name, maiden names, spouse's name, dates of birth and death, and place of birth are presented. Each burial is numbered as it was by the pastor; thus, there are some inevitable mistakes, such as duplications or omissions of numbers. Those members of the parish not buried at Voegtly were not included. Every effort has been made to copy the information accurately. The first two pastors (or their translators) did not use traditional German characters and diacritics, such as "ß" or the umlaut (e.g., "Elsass" rather than "Elsaß"). These were transcribed as they appeared in the records. The records following do tend to use the German characters and diacritics, which are reproduced here.

Many of the dates of birth had to be calculated from the information provided by the pastor. For example, the pastor gave the date of death, and then how many days, months, and years the person lived. Some inaccuracies may have been introduced into birth dates because of errors in the information provided.

As noted by the translators, illegible letters were indicated by "*****" to indicate that information is present but is not decipherable.

Some individuals were not given birth dates or other information by the pastor, but baptism dates indicated they were

probably infants. Others did not have first names. In some cases, the pastor noted that an individual was unbaptised; in other cases it is clear from the age that the individual was an infant. In some cases the pastor simply wrote "the child of..." Infants who were stillborn were noted as such. These types of designations have been added in brackets ([]).

Spouses who were widowed and remarried show both their birth names and their first husband's names, which are in parentheses. Their children tended to keep the name under which they were born.

The names are presented in alphabetical order, rather than temporal order, with the pastor's record number to the left.

At least three of the individuals can probably be identified based on information given in the burial records and their placement in the cemetery. Burial 15, which archaeological field notes reference as a leg buried east-west (all other burials were oriented north-south), may be the limb of burial 50, which appeared to represent an adult with an amputated leg. These may be the remains of Johann Jakob Babst (burial record 210), who, "during the night of the 13th to 14th of September, 1842, he broke his left leg when he fell from a window; an amputation became necessary and the resulting *** a few days later took his life..." (Dzodin and Luff, 1989).

Two other identifications may be the adjacent, very small coffins of burials 219 and 224, which may represent the still-born Dierdorf children (burial records 378 and 379).

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
429	*****, Ludwig	M			17**	10/30/1848	*oute, Canton Fribourg
861	Abby, Wilhelm	M			4/09/1858	3/23/1860	Allegheny
868	Abey, Maria	F			6/09/1860	6/24/1860	
9	Ackermann, Christian	M			1/14/1832	12/31/1833	
155	Ackermann, Elisabeth	F		Johannes	11/29/1803	9/10/1840	Linswiler, French Dept. Niedernheim
811	Ackermann, Johann Eduard Adolf	M			10/10/1857	8/04/1858	
189	Ackermann, Johannes	M		Elisabeth	1801	9/20/1841	Kingdom of Wurtemberg
623	Ackermann, Katharina	F			2/19/1852	9/22/1852	
157	Ackermann, Maria Luise	F			2/25/1840	9/22/1840	
256	Ackermann, Peter	M			9/11/1843	6/25/1844	
410	Ackermann, Philipp Rudolf	M			10/16/1846	6/16/1848	
446	Ackermann, Wilhelm Heinrich	M			12/21/1848	2/2/1849	
94	Aeshlemann, Elisabetha	F	Friedele	David	1782	3/12/1838	Lutzeffy, Canton Bern, Switzerland
612	Agnay [infant]				4/1852	8/23/1852	
219	Ahlborn, Georg	M			1/27/1841	3/29/1843	
88	Albers, Johann Friedrich [adult]	M				9/09/1837	Nordholz, Bruecken, Hoya, Hannover
412	Albrecht, Konrad	M			6/24/1808	7/10/1848	Pferdsbach, Hessen and Darmstadt
813	Allman, Sophia	F			9/01/1858	9/24/1858	
344	Amsler, Sara Elisabeth	F				12/21/1846	
491	Anderwerth [infant]				10/29/1849	1/29/1850	
543	Andregg, Johannes	M		None	4/16/1922	9/19/1850	Oberbigg, Amtskreis Wargau, Bern
792	Anschütz, Alice Leonore Elisabeth	F			5/24/1856	2/04/1858	Allegheny

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
626	Anschütz, Eduard	M			10/17/1851	10/11/1852	
300	Anschütz, Eduard	M			2/26/1844	10/19/1845	
483	Anschütz, Emilia	F			4/23/1849	1/04/1850	
464	Anschütz, Margaretha	F	Hönig	Heinrich	11/12/1814	8/03/1849	Nettersburg, Oberamt Bleiblingen, Württemberg
382	Arend, Johannes	M			5/20/1840	11/14/1847	Chambersburg, Pennsylvania
431	Arnd, Johannes	M		Margaretha nec Baugert	10/14/1802	11/08/1848	Klemgungen, Grand Duchy Hessen
182	Arnold, Margarethe Wilhelmine	F			5/13/1840	7/24/1841	
119	Arnold, Wilhelm August	M			2/16/1839	4/22/1839	
602	Art, Joh. Georg	M		A. Barbara nee Lüsches	11/18/1793	6/24/1852	Ringelsdorf, Gemeinde Wensendorf, R. Bavaria
795	Aschman, Friedrich Alexander	M			2/13/1857	3/16/1858	
210	Babst, Johann Jakob	M		Anna Marie nee Spangler (Dec.)	6/23/1781	10/14/1842	Buedingen, Grand Duchy Hessen
164	Babst, Katherine Luise	F			10/31/1840	12/13/1840	
545	Bach, Barbara	F	Hautsch	Friedrich	1/21/1811	9/24/1850	Rothenburg, Bavaria
168	Bail, Maria	F			6/28/1838	1/30/1841	
595	Baldinger, Anna	F	Mürki	Joh.	4/12/1792	3/27/1852	Mendach, ***** Bruck, Canton Aargau, Switzerland
734	Baldinger, Anna	F	Kögly	Conrad (Dec.)	5/08/1798	10/18/1855	Nauenkirch, Schaffhausen
476	Baldinger, Conrad	M		Anna nee Kögly	5/1792	11/30/1849	Reckingen (Kirchgemeinde) Zunzach, Aargu, Switzerland
812	Baldinger, Karl August	M			2/19/1857	9/08/1858	
803	Balz, Louis	M			12/10/1853	5/19/1858	Louisville, Kentucky
138	Bambach [stillborn]	M			12/01/1839	12/01/1839	Allegheny City
305	Bamberg [stillborn]	M			11/16/1845	11/16/1845	Allegheny
654	Bandi, Jacob	M			2/08/1853	8/19/1853	
260	Barnbey, Johannes	M			11/15/1843	9/23/1844	
585	Bauder, Samuel	M			8/01/1848	11/01/1851	
54	Bauer, Emma Louisa	F			2/16/1835	8/24/1836	
620	Bauer, Johann	M			3/29/1852	9/18/1852	
350	Bauer, Johann Martin	M		Rosine nee Nawern (Dec.)	1762	1/29/1847	Boffenau, Oberamt Naunburg, Kingdom Württemberg
214	Bauer [stillborn]	M			1/21/1843	1/21/1843	Near Allegheny
498	Baum, Maria Marg.	F			12/31/1849	3/31/1850	
81	Baumann [stillborn]				5/06/1837	5/06/1837	Allegheny City
32	Baumgartner, Jakob	M			11/19/1830	6/19/1835	
548	Bebingen, Anton	M		Katharina nee Hatzinger	1817	10/30/1850	Wollmaisweiler, Rhine Bavaria
689	Beck, Georg	M		Sophia nee Wargand	1828	9/24/1854	Haraldshausen, Württemberg
790	Becker, Adelheid Elisabeth Rosina	F			10/24/1855	1/27/1858	
524	Becker, Elis. Wilh.	F			8/10/1850	8/23/1850	
834	Becker, Emma	F			3/18/1858	7/23/1859	
368	Becker, Emma Wilhelmine	F				6/18/1847	
320	Becker, Heinrich	M			4/1822	2/6/1846	Winnerod, Grünberg, Grand Duchy Hessen
85	Becker, Jacob	M			5/11/1836	8/27/1837	
437	Becker, Kurt Wilhelm	M			12/10/1848	12/15/1848	
115	Beil, Johann Andrew	M		Yes	6/29/1794	10/25/1838	Neunkirchen, Amstadt, Duchy Hessen Darmstadt
185	Beilstein, Katherine	F			7/02/1841	9/13/1841	
83	Bender, Katherina	F			12/15/1836	5/28/1837	
660	Bender, Robert	M			11/30/1850	1/10/1854	
579	Bendi, Louise	F			3/1851	8/28/1851	
286	Beppler, Johannes	M		Elisabeth nee Ruppel (2nd wife)	2/26/1794	7/05/1845	Alzbach, Wetzlar, Kingdom of Prussia
800	Berk, Conrad	M			10/20/1835	4/30/1858	Dettingen, Kingdom of Württemberg, Oberamt Werrach
269	Black, Thomas	M		Susanne nee Friedoli	2/22/1816	10/23/1844	Pitsburg [sic]
492	Blumer, *****	M			6/19/1825	1/30/1850	Schwarden, Canton Glarus, Switzerland
603	Boll, Charlotte Amalie	F	Bernhard	Joh. Fr.	7/26/1801	7/07/1852	Birkenau, Amt Weinheim, Grand Duchy Hessen
542	Bollje, Anna M.	F			1848	9/15/1850	
512	Bollje, Katharina Mathilde	F			11/29/1849	7/29/1850	
317	Bollje, Maria Christine	F			8/20/1844	1/14/1846	
878	Bolster, Rosine Margaretha	F			6/20/1860	8/16/1860	

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
325	Brand [stillborn]	M			3/01/1846	3/01/1846	
552	Brathauns, Magdalena	F			12/28/1844	1/17/1851	Herstenhagen, Kurhessen
31	Breitenstein, Anna	F	Suter	Johann (2nd husband)	1794	3/09/1835	Calliken, Canton Aargau, Switzerland
415	Brinthauer, Barb. Elisabeth	F			7/24/1846	7/24/1848	
264	Bronermann, Marie Luise	F			12/21/1843	8/11/1844	
330	Brontsch, Christine	F	Werner	Lorenz	3/11/1790	3/28/1846	Fyelsbach, Grand Duchy Hessen
24	Brown, Mary	F			10/07/1833	9/9/1834	Allegheny City
126	Buehler, Johann	M			ca. 1802	7/5/1839	Singerbergl, Canton Bern, Switzerland
259	Burckhardt, Wilhelmine	F	von Brand	Christian	10/28/1788	7/13/1844	Castle Bühl, Bagoroth, Brandenburg
729	Bürgen, Elisabeth	F			7/1854	7/06/1855	
238	Carsberken [infant]	M			9/2/1843	9/02/1843	Pittsburg
634	Checkam [stillborn]				12/22/1852	12/22/1852	
235	Clark, Elisabeth	F	Weickert	Ruben	8/13/1817	8/13/1843	*****, Pennsylvania
35	Cochran, John	M			9/14/1835	9/14/1835	
19	Cochren, Maria	F			7/04/1834	7/10/1834	
222	Daellenbach, Christian	M			4/26/1843	4/27/1843	
224	Daellenbach, Elisabeth	F			4/26/1843	5/17/1843	
96	Daellenbach, Mathias	M			1/24/1838	2/25/1838	
453	Dällenbach, Jacob	M			1845	4/16/1849	
592	Dällenbach, Karoline	F			3/30/1850	1/30/1852	
177	Daubart, Ludwig	M			10/21/1839	6/13/1841	
402	Dehtlefs, Maria Anna	F	Dorst	M.F. Dehtlefs (Pastor)	8/19/1827	5/05/1848	Barbelroth, Land Berggebern, Rhine Bavaria
696	Dellenbach, Marg. Karoline	F			10/1852	10/22/1854	
435	Dellenbach, Maria Louise	F			4/16/1839	12/11/1848	
335	Denninger, Adam Friedrich	M		Katharina nee Doinbennege (4th wife)	2/12/1767	5/17/1846	Langensteinbach, Grand Duchy Baden
397	Deubel, Louise Margarethe	F	Melsheim	Deubel (Dec.)	8/1779	1/30/1848	Adersbach, Neckar Co., Kingdom of Baden
80	Deusen, Mathias	M		Maria	10/1768	4/22/1837	Bern, Switzerland
301	Dicke, Johann Gottfried	M			10/12/1845	10/19/1845	
810	Dickerhof, Katharina	F			7/19/1856	8/01/1858	
387	Dierdorf, Elisabetha	F			01/08/1840	11/30/1847	Kleinlandorf by Maune***, Prussia
398	Dierdorf, Ernst	M			3/30/1843	2/11/1848	Prussia
624	Dierdorf, Friedrich	M			5/11/1852	9/22/1852	
374	Dierdorf, Johann	M			1841	9/08/1847	
733	Dierdorf, Matthias	M		Juliana nee Dierdorf	8/09/1804	9/12/1855	Wollendorf by Nauenkirch, Schaffhausen
379	Dierdorf [stillborn twin]				10/19/1847	10/19/1847	
378	Dierdorf [stillborn twin]				10/19/1847	10/19/1847	
882	Dietzel, Georg	M			4/02/1802	10/08/1860	Pferdsbach, Grand Duchy Hessen, C. Büdingen
852	Dinckelburg, Anna Katharina	F	Reichhold	Anton	9/27/1797	1/14/1860	Kassel, Electorate of Hessen
501	Dingel, Anna Katharina	F	Pfetzling	Andreas (Dec)	1789	4/16/1850	Herlefeld, Kurhessen
178	Dingel, Elisabeth	F			11/21/1829	6/13/1841	Herlefeld, Amt. Spangenberg, Kurtiessen
93	Dingler, Heinrich Christian	M			12/31/1837	2/8/1838	
896	Dolle, Gertrude	F		None	10/20/1805	3/30/1861	Werstein, Province of Westphalia
886	Dornheim, Anna Lousie	F			6/10/1853	11/14/1860	***
313	Dörr, Ernst	M			9/24/1845	1/01/1846	
872	Dosch, Georg Friedrich Michael	M			8/02/1859	7/07/1860	
765	Dosch, Georg Michael	M			3/09/1856	1/25/1857	
830	Dosch, Michael Georg Wilhelm	M			12/25/1857	5/21/1859	Allegheny
193	Duenkelberg, Ludwig	M			4/30/1833	1/07/1842	
461	Dulian, Johann	M			5/12/1849	7/12/1849	
855	Dünch, Elise Louise	F			3/10/1859	1/23/1860	Allegheny
737	Dusch, Anna Maria	F			2/1855	11/26/1855	
436	Eberhard, Conrad August	M			12/05/1848	12/13/1848	
422	Eberlein, Anna Kunigunde [infant]	F			8/18/1848		
781	Eckart, Regina	F			1/28/1857	9/06/1857	
755	Eckart, Wilhelm Otto	M			10/21/1855	9/29/1856	
873	Eckert, Wilhelm	M			1808	7/10/1860	Niederkursbach, Grand Duchy Hessen
526	Edding, Friedrich	M		Maria nee Dicker	8/1817	8/24/1850	Petershagen, Westphalia, Prussia
536	Edding, Maria S.	F	Dinkerger	Friedrich. (Dec.)	1824	8/30/1850	Strähne, Hannover

Appendix I—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
550	Egenweiler, Peter	M		Elisabeth nee Gerwig	12/12/1825	12/15/1850	Rothenberg, Württemberg
20	Eggler, Willans	M		Yes	9/02/1798	7/25/1834	Ringgauburg, Canton Bern, Switzerland
192	Ehemann, Luise	F			10/26/1839	12/24/1841	
495	Ehewens [infant or child]					3/08/1850	
682	Eibert, Louise	F			8/10/1852	9/10/1854	
885	Eisenhauer, Maria Anna	F			6/25/1858	11/03/1860	Allegheny
808	Falter, Johann Michael	M			8/01/1857	7/22/1858	
877	Faulhaber, Ernst Friedrich August Eugen	M			11/01/1859	8/12/1860	
836	Faulhaber, Mathilde Karoline	F			6/20/1855	7/25/1859	
194	Faust, Johannes	M			7/14/1840	2/09/1842	
469	Feilbach [infant or child]					8/14/1849	
659	Fencker, Christian	M			2/16/1826	11/11/1853	Strah by Preußisch Minden, Kingdom of Prussia
425	Ferlbach [stillborn]				9/15/1848	9/15/1848	
86	Feuerhacken, August Heinrich	M			3/12/1837	8/25/1837	
136	Feuerhaken, Elisabeth	F			8/19/1838	9/18/1839	
862	Fischer, Andreas	M			2/15/1815	3/24/1860	Weiler, Grand Duchy Sachsen Weimar
823	Fischer, Georg Heinrich	M			2/02/1859	3/01/1859	
272	Fischer, Gottlieb	M		Christine nee Schaal	4/09/1809	11/23/1844	Großaschbach, Kingdom of Württemberg
217	Fischer, Hermann	M			1806	3/02/1843	Oberramstadt, Grand Duchy Hessen
108	Fischer, Johann	M			8/04/1837	9/6/1838	
405	Fischer, Maria	F			1846	5/1848	
179	Foerster, Wilhelm Julius	M			3/3/1839	6/14/1841	
304	Forell, Johannes	M			2/27/1844	11/9/1845	Zannsville, Ohio
764	Fornot, John Heinrich	M			7/08/1856	1/23/1857	
613	Forster [stillborn]				8/23/1852	8/23/1852	
844	Frank, Eva Barbara	F			8/26/1858	11/21/1859	
709	Frank [infant]				1/05/1855	1/26/1855	
143	Frei, Anna Maria Margaret	F			4/05/1814	3/19/1840	Lorbach, Grand Duchy Hessen
47	Frey, Carolina	F			8/06/1835	4/12/1836	
329	Friedhofer [stillborn]	M			3/22/1846	3/22/1846	
358	Friedhofer [stillborn]				4/21/1847	4/21/1847	
726	Friedli, Martha	F	Müsser	Jacob (Dec.)	12/25/1778	6/19/1855	Etzighausen, Bern
420	Friedrich, Carl Christian	M			3/1848	8/9/1848	Pittsburg
385	Fritz, Eva Maria	F			2/8/1834	11/27/1847	Laudersdorf, Sachsen Meinigen
828	Froehlich, Friedrich	M			5/22/1855	4/25/1859	
518	Fröhlich, Dorothea	F	Frankhausen	Georg	7/21/1817	8/15/1850	Rauschwasser Elsaß
608	Fröhlich, Karl	M			8/24/1851	7/24/1852	
784	Fröhlich, Maria Magdalena	F			10/28/1856	10/04/1857	
867	Fröhlich, Rosalia Anna	F			4/06/1859	6/18/1860	
299	Fuhrer, Elisabeth	F			9/27/1843	10/11/1845	
299	Fuhrer, Elisabeth	F	Strutter	Johannes	10/1811	10/10/1845	Rütz, by Büren, Canton Bern
112	Fuker, Heinrich	M			1820	1838	Bremen; Lived in Hannover
11	Furer, Elizabetha	F			10/05/1828	8/05/1833	Dinssburg, Canton Bern, Switzerland
271	Gahreis, Johann	M			1824	11/18/1844	Weistenheim, Stambach, Münchburg, Kingdom of Bavaria
124	Ganter, Margaretha	F	Guertsch	Daniel	8/15/1812	6/29/1839	Wildenberg, Canton Bern, Switzerland
130	Gauch, Katharine	F			5/21/1839	7/15/1839	
152	Gehron, Johannes	M			6/26/1799	7/13/1840	Gerdenheim, Grand Duchy Hessen
129	Gehron, Mathilde	F			7/07/1839	7/08/1839	
339	Geier, Katharina Salome	F	Tilling	Philipp (2nd husband)	5/1753	7/8/1846	Strausburg
120	Geiser, Daniel	M		Maria Elizabeth nee Naub	10/9/1761	4/27/1839	Langenthal, Canton Bern, Switzerland
427	Geng, Daniel [infant]	M				10/12/1848	
249	Gerber, Christian	M			3/03/1842	2/24/1844	
444	Gerber, Georg	M		Margarethe nee Röhl	1/18/1818	1/19/1849	Niederbrain, Niederelsaß
879	Gerber, Johann Friedrich	M			4/25/1860	8/18/1860	
759	Gerber, Nicolaus	M		Barbara nee *****	2/04/1814	12/1856	Dorstel, French *****
669	Gerber, Sophia	F			11/20/1850	2/09/1854	
33	Gerhard, Eva Katherina	F	Erb	Johann Jen	2/1802	7/17/1835	Rintheim, Duchy Baden, Germany
111	Gerrohn, Johannes	M			12/1836	9/1838	
266	Gerßinger, Marie Luise Eleonore	F			12/29/1839	8/29/1844	

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
667	Gerst, Karoline	F			4/19/1853	2/08/1854	
582	Gerst, Magdalena	F			3/29/1849	10/29/1851	
285	Gerst, Philipp	M			6/3/1845	6/09/1845	
223	Gerst [infant]	F			5/09/1843	5/09/1843	
332	Gerst [stillborn]	M			4/14/1846	4/14/1846	
678	Gerwig, Albert	M			7/1852	7/26/1854	
649	Gerwig, Eduard Friedr.	M			4/20/1852	7/21/1853	
148	Gerwig, Georg Jakob	M		Margarethe nee Stern (2nd wife)	6/25/1754	4/27/1840	Oberbetschdorf, French Dept. Niedernheim, Canton Sulz
448	Gerwig, Georg Jacob	M			2/10/1849	2/18/1849	
496	Gerwig, Katharina	F			4/10/1830	3/26/1850	Obern Betschdorf, Elsaß
265	Gerwig, Magdalene	F			5/31/1829	8/26/1844	Oberbetschdorf, by Weißenburg, in Kingdom of France
641	Gerwig, Margarethe	F	Raum	Jos. (Dec.)	6/1789	3/13/1853	Oberbetschdorf
674	Gerwig, Maria Mathilde	F			9/12/1853	5/12/1854	
338	Gerwig, Sophia Rosalie	F			10/29/1845	6/22/1846	
273	Gichtel, Maria	F	Sauer	Heinrich	1799	12/10/1844	
199	Giese, Elisabeth	F	Baertschi	Yes	1760	5/13/1842	Near Ruemmlingen, Canton Basel
675	Gleiß, Maria	F			12/19/1853	7/19/1854	
389	Gleiß, Wilhelm	M			12/10/1847	12/13/1847	
242	Gließ, Johann Christian	M			1/24/1843	9/13/1843	
237	Gließ, Johanne Wilhelmine Christine	F			12/12/1842	8/23/1843	
245	Gließ, Wilhelm	M			8/02/1843	9/27/1843	
326	Gließ, Wilhelm	M			6/19/1841	3/01/1846	
220	Gliess, Johann Samuel	M		Friederika nee Hartje	5/17/1813	4/01/1843	Schlitz, Grand Duchy Hessen
788	Glis, Wilhelm	M		Elisabeth nee Korf	9/27/1810	12/30/1857	Schletz, Kurhessen
366	Göbel, Heinrich	M			7/20/1845	6/10/1847	
451	Göbert [infant]	M			4/07/1849	4/07/1849	
58	Goetz, Johannes	M		Married twice	4/03/1781	10/5/1836	Frueckenfeld, Rhine Bavaria
677	Gotthardt, Johann	M		Katharina nee Strümer	5/03/1820	7/22/1854	Vollbartshausen, County Wetzlar, Koblenz, Prussia
363	Gottsmann, Christine	F	Vogel	Michael	12/25/1790	5/26/1847	Unterelsaß
424	Götze, Ernst Friedrich August [infant]	M				8/30/1848	
606	Gräber, Joh. Adam	M			4/03/1852	7/22/1852	
875	Graus, Anna Margaretha	F			1/14/1860	7/28/1860	
200	Griestel, Maria	F			3/21/1840	5/15/1842	
775	Groß, Elisabeth	F	Wenkebach	Michael	6/27/1771	6/12/1857	Fischbacherhof, C. Kaiserlautern, Rheinpfaltz
328	Großinger, Friedrich	M			2/23/1844	3/17/1846	
586	Großman, Louise Friederike	F			7/12/1849	11/20/1851	Höfen, Gemeinde Lulmbach, Württemberg
598	Grüber, A. Margarethe	F	Haus	Mich.	9/29/1831	4/14/1852	Resdorf, Hessen Darmstadt
248	Grünenwald, Jakob	M			1811	1/31/1844	Vollmerls, Schüchtern, Electorate Hessen
233	Grunz, Anna Katharine	F			7/08/1843	8/04/1843	
229	Grunz, Martin	M			6/27/1843	7/18/1843	
334	Günter, Johann Friedrich	M			6/4/1845	5/7/1846	Dobel, Kingdom of Württemberg
531	Gürcher, Friedrich	M		Elisabeth nee Schröder	12/28/1814	8/27/1850	Engelsbrunn, Württemberg
618	Gysen, H. Jacob	M			8/18/1796	9/11/1852	Wittenburg, Canton Basel, Switzerland
785	Haas, Magdalena Friederike	F			8/19/1851	10/31/1857	
482	Haas, Maria Magd.	F			11/20/1846	12/19/1849	Pfaffenhofen, Elsaß
45	Hack, George Heinrich	M			7/04/1835	3/12/1836	
4	Haenig, Johann Gottlieb	M			5/15/1832	9/12/1833	
16	Haenig, Johann Friedrich	M			12/16/1833	2/25/1834	Pittsburgh
816	Haeschi, Arnold	M			8/10/1837	11/03/1858	Pieterlin, Amtsbezirk Büren, Canton Bern, Switzerland
570	Hager, Heinrich	M		Yes	1816	6/18/1851	Nänelton, Gemeinde Aster, Canton Glarus, Switzerland
292	Hahe, Erna Maria	F			4/15/1844	8/24/1845	Blaufeld, Kingdom of Württemberg
653	Hahelz, Johann Friedr. Wilhe.	M			12/30/1851	8/13/1853	
419	Hahn, Jacob [stillborn]	M			8/06/1848	8/06/1848	
529	Haist, Juliane [infant or child]	F				8/24/1850	

Appendix I—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
160	Haller, Andreas Christian	M			10/20/1840	11/06/1840	
889	Hammisch, Samuel Albert	M			3/29/1860	12/16/1860	
21	Hands, ***				2/25/1834	8/05/1834	
433	Handsche [infant]	M			11/30/1848	12/03/1848	
308	Handschen, Emil	M			4/19/1845	12/12/1845	Sustach, Canton Basel, Switzerland
503	Handschen, Salome	F			4/16/1850	4/20/1850	
367	Handschuhmacher, Charlotte	F	Weber	Daniel	1814	6/11/1847	Schönau, Rhine Bavaria
454	Hangi, Franz	M		Margaretha nee Feiner	1/06/1798	5/01/1849	Nenningen, Canton Solothurn, Switzerland
44	Hani, Anna Barbara	F	Jenzer	Johann	1805	3/02/1836	Melchanan, Canton Bern, Switzerland
684	Häni, Eduard	M			9/1852	9/16/1854	
572	Hänni, Johannes Christian	M			4/02/1851	6/24/1851	
361	Hänni, Maria	F	Keußen	Johannes (2nd husband)	4/2/1794	5/11/1847	Toften, Gemeinde Belz, Bern, Switzerland
294	Hänny, Anna Sophia	F			5/14/1845	9/2/1845	
257	Hänny, Karl Ludwig	M			6/28/1843	6/25/1844	
730	Harrig, Joh. Georg Albert	M			10/1854	7/17/1855	
283	Hartmann, Anna Maria	F	Bühl	Johann Martin	10/04/1772	4/06/1845	Ebertle, Canton St. Gallen
658	Hartmann, Conrad	M		Louise Rosina nee Gesch***	6/24/1828	11/11/1853	County of Bobenhausen, Hessen Darmstadt
522	Hartmann, Dorothea	F			7/21/1843	8/22/1850	Schechbrücker, Hess. Darmstadt
573	Hartmann, Friedrich Christian	M		Yes	1787	7/26/1851	Höckelheim by Nordheim, Hannover
100	Hartmann, Friedrick	M			12/12/1820	7/09/1838	Bobenhansen, Duchy Hessen Darmstadt
13	Hartmann, Heinrich	M			9/16/1813	1/24/1834	Erbenhausen in Widde, Duchy Darmstadt
312	Hartmann, Johann Heinrich	M		Anna Maria nee Albes	12/25/1787	12/26/1845	Bobenhausen, Nidda, Grand Duchy Hessen
291	Hartmann, Johann Martin	M		Anna Maria nee Bühl (Dec.)	1/01/1777	8/17/1845	Ebert, Canton St. Gallen, Switzerland
680	Hartmann, Magdalena	F	Gerwig	Christian	1/01/1806	8/21/1854	Obertschdorf, Elsaß
230	Hartmann, Maria Margarethe	F			9/06/1842	8/2/1843	
92	Hartmann, Valentin	M			4/05/1805	2/05/1838	Ebnat, Canton St. Gallen, Switzerland
434	Hartz, Christian Friedrich	M		Johanna Friederike nee Bellef	8/21/1783	12/4/1848	Behrhausen, Amt Moringen, Kingdom of Hannover
793	Hartze, Friederike	F	Lüblich	Christian Fried. (Dec.)	9/18/1789	2/28/1858	Gross****, Laudenberg, Kingdom of Bavaria
610	Hartze, Ludwig	M			1833	7/25/1852	Großenbrode, Hannover
897	Häsler, Lorenz	M			7/14/1823	4/15/1861	Pfauheim, Grand Duchy Hessen, Oberamt Donauschwingen
103	Hatz, Johann	M			7/14/1838	7/25/1838	
201	Hauch, Christian	M			5/20/1842	5/23/1842	
418	Hauch, Juliane [infant]	F				7/30/1848	
352	Hauch [stillborn]				2/05/1847	2/05/1847	
714	Hauck, Wilh.	M			11/1853	2/27/1855	
534	Haus, Adam	M		Anna Katharina nee Rickert	8/31/1797	8/28/1850	Ristdorf, Hessen and Darmstadt
52	Headley, William	M			1/25/1831	7/25/1836	
829	Heckendorn, Magdalene	F			8/11/1836	5/11/1859	Oberbetschdorf, Elsaß, France
791	Heerwagen, Albert Wilhelm	M			8/26/1857	2/01/1858	Pittsburg
95	Hefer, Georg Washington	M			12/3/1836	3/23/1838	
874	Hegel, Wilhelmine	F			9/17/1859	7/25/1860	
440	Heid, Eva	F	Muhre	Jacob (Dec.)	2/02/1771	12/21/1848	Scherenweiler, Unterelsaß
621	Heil, Peter	M			7/15/1850	9/19/1852	
574	Heinemann, Joh. Aug.	M			3/01/1850	7/27/1851	
321	Heist, Anna Katharine	F			6/19/1845	2/11/1846	
307	Heist, Anna Margarethe	F			4/24/1838	11/28/1845	
102	Heist, Eva	F			12/21/1837	7/16/1838	
101	Heist, Katherina	F			3/19/1824	3/15/1838	Riechelsheim, Erbach, Duchy Hessen Darmstadt
69	Heist [stillborn]	M			1/09/1837	1/09/1837	
850	Hela, Adam	M			7/24/1858	1/02/1860	Pittsburg
817	Held, Georg	M			5/19/1847	12/17/1858	Pittsburg
135	Heller, Carl Andreas	M			7/25/1838	9/2/1839	
25	Heller, Eva Katherine	F			5/17/1834	10/26/1834	Pittsburgh
46	Heller, Maria	F			2/28/1836?	4/3/1836	
417	Hermann, ***** [infant]	F				7/30/1848	
842	Hermann, Johannes	M			1/13/1859	10/02/1859	Allegheny

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
114	Herrmann, Anna Barbara	F			8/3/1838	10/14/1838	
413	Herzog, Jacob	M			2/20/1811	7/12/1848	Recklingen, Aargau, Switzerland
414	Hesd, Georg Jacob	M		Karoline nee Trax	1807	7/14/1848	Pfaffenhausen, Baden
898	Hess, Richard Stuart	M			9/21/1860	4/28/1861	Pittsburg
666	Hetzel, Eduard	M			12/08/1853	1/29/1854	
407	Hieber, Elis. Katharina [infant]	F				6/10/1848	
209	Hieber, Elisabeth Katherine	F		Daniel	3/14/1778	9/15/1842	Liedenbach, Oberamt Weiblingern, Kingdom of Wurtemberg
616	Hill, Anna Katharina	F			8/11/1852	9/04/1852	
826	Hoch, Maria	F	Hermann	Johannes (Dec.)		3/30/1859	Lang*****, Grand Duchy Hessen, Dinburg
306	Hoch [infant]	M			10/07/1845	11/24/1845	
837	Höcheler, *****				8/31/1859	8/31/1859	
546	Hocheli [infant]				10/15/1850	10/15/1850	
231	Hock, Maria Magdalene	F	Reuning	Heinrich	2/22/1811	8/01/1843	Nidda, Grand Duchy Hessen
153	Hock, Maria Katherine	F			2/16/1840	7/29/1840	
774	Höckel, Anna Elisabeth	F			4/26/1856	5/08/1857	
206	Hoeh, Johann Jakob	M			5/12/1841	8/07/1842	
41	Hoenig, Johann Georg	M		Katherine nee Kaefer	8/26/1808	12/16/1835	Rettersburg, Kingdom Wurtemberg
673	Hof, Friedrich Wilhelm	M			11/07/1850	4/15/1854	Jefferson Township
609	Hoffman, Wolf. H.	M			12/1851	8/07/1852	
169	Hoffmann, Karl	M			6/10/1835	2/21/1841	
170	Hoffmann, Maria Luise Henriette	F			2/26/1832	3/01/1841	
346	Hoffmann [stillborn]	F			1/06/1847	1/06/1847	
337	Hoffmeister, Hermann Ludwig	M			4/30/1844	5/28/1846	
593	Hoffmeister, Joh. Ferd. Theodor	M			11/11/1851	2/11/1852	
615	Hoffmeister, Joh. Heinrich	M			1/20/1842	9/03/1852	
478	Hoffmeister, Johann Ludwig	M			9/27/1848	12/05/1849	
376	Hofmann, Andreas	M		Magdalene nee Hofer	12/16/1807	10/18/1847	Arenbach, Amt Rothenburg ob der Tauber, Kingdom of Bavaria
395	Hofmann, Elisabeth	F			1/10/1839	1/11/1848	Buffalo, Ny
447	Hofmann, Ernestine Maria	F			05/16/1848	2/13/1849	
716	Hofmann, Katharina M.	F			1/1855	3/14/1855	
349	Hofmann, Louise	F			12/02/1846	1/09/1847	
394	Hofmann, Maria Anna	F			4/20/1846	1/11/1848	
406	Hofmann [stillborn]				06/08/1848	06/08/1848	
639	Hofmeier, Simon	M		Katharina nee Habermahl	8/03/1802	1/31/1853	Schlitz, Grand Duchy Hessen
139	Hofmeister, Maria Elisabe	F			12/3/1839	1/04/1840	
364	Höh, Margarethe Elisabeth	F			10/09/1846	5/28/1847	
365	Höh, Mathilde	F			5/21/1845	6/08/1847	
840	Höllerman, Katharina Elisabetha	F			11/29/1851	9/18/1859	Lernsbach, Hessen
895	Höllerman, Maria	F	Altermüller	Peter	10/14/1812	3/14/1861	Bemsbach, Grand Duchy Hessen
712	Homeier, Elisabeth	F			12/16/1834	2/02/1855	Schlitz, Hess. Darmstadt
581	Hörner, Johannes	M		Maria nee Hänni	12/29/1806	10/15/1851	Toffen, Canton Bern
391	Hub, Georg Friedrich	M			12/10/1840	12/23/1847	
302	Hub, Johann Georg	M		Magdalene Barbara nee Gräder	9/08/1811	10/22/1845	Steinkirchen, Amt Künzeler, Kingdom of Württemberg
691	Huber, Elisabeth	F	Wetter	Georg	4/21/1820	10/06/1854	Dettweiler, Elsaß
614	Huber, Emma	F			2/25/1852	8/30/1852	Allegheny
668	Huber, Karoline	F			5/02/1850	2/04/1854	Allegheny
172	Huey [unbaptised]	F			4/13/1841	4/13/1841	
819	Hug, Christina Friederike	F	Rickle	Christian	1/20/1820	1/21/1859	Einstetten, Oberamt, Emmendingen
818	Hug [stillborn]				1/1859	1/1859	
110	Hungmann, Johannes	M			5/11/1837	9/11/1838	Glanburg, Nidde, Duchy Hessen Darmstadt
883	Hüttel, Reinhold Emil	M			12/05/1859	10/10/1860	
10	Imhof, Heinrich	M			9/23/1757	1/07/1834	Winterburgen, Canton Basel, Switzerland
820	Immling, Maria Christine	F	Sehrörs	Yes	3/05/1792	1/27/1859	Wanderswink, Holland
805	Immlyer, Heinrich	M		Henrietta nee Heinrich	1826	6/25/1858	Osnabruck, Kingdom of Hannover
258	Itin, Adelheid Bertha Ida	F			8/16/1843	7/05/1844	
354	Itin, Esq., Heinrich	M		Verena nee Vögtly (Rickenbach)	1/27/1812	3/30/1847	Neisdorf, Basel Landschaft, Switzerland
375	Jannz [stillborn]				9/15/1847	9/15/1847	

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
218	Jenning, Barbara	F	Wild	Balthasar	8/25/1790	3/31/1843	Schwandern, Canton St. Glarus
881	Jenny, Barbara	F	****	Yes	3/10/1797	9/06/1860	Rohrdorf, Canton Aargau, Switzerland
532	Jennz, Balthasar	M			9/1/1839	8/26/1850	Schwanden, Glarus, Switzerland
489	Jennz, Elsbeth Wilhelmine	F			9/15/1848	1/26/1850	
835	Jennz, Emma	F			7/13/1858	7/24/1859	
549	Jennz [infant or child]					11/11/1850	
589	Jennz [stillborn]				1/10/1852	1/10/1852	
575	Jung, Christian	M			12/22/1850	8/02/1851	
544	Jung, Friedrich	M			1831	9/20/1850	Leiselheim, Grand Duchy Hessen
445	Kalterborn, Magdalena	F	Betsche	Peter	2/12/1825	1/24/1849	Ringenbach, Canton Bern
806	Kamish, Amalie Louise	F			10/11/1857	7/06/1858	
181	Karsbecken, Regine Maria	F			7/30/1839	6/25/1841	
591	Kaufmann, Christine Agatha	F	Bavertal	Adam	2/22/1804	1/29/1852	Schorndorf, Württemberg
211	Kaufmann, Eduard Albert	M			2/02/1841	11/10/1842	
225	Kautt, Johann Ullrich	M		Anna Maria nee Schnittlau	5/16/1800	5/26/1843	Emmenhausen, Oberamt Tübingen, Kingdom of Württemberg
121	Keifer [stillborn]				5/1839	5/1839	
798	Keil, Georg	M			11/10/1854	4/09/1858	
213	Kenter, Eduard Nikolaus	M			1/01/1842	1/01/1843	
373	Kern, Elisabeth	F	Hartmann	Georg Karl	1820	8/19/1847	Langenbranning, Hessen and Darmstadt
809	Kern, Elisabetha	F			7/29/1857	7/24/1858	
372	Kern, Georg Heinrich	M			8/02/1846	8/05/1847	
134	Kern, Johannes	M			1/26/1816	7/27/1839	Neuenschmittlen Amt, Waechtersbach, Hessen
890	Kern, Wilhelm	M		Elisabeth nee Braun	4/22/1822	12/15/1860	Weneschnitten, Amt Wörcharsbach
450	Kern [stillborn]				3/13/1849	3/13/1849	
144	Kiefer, Adam	M			3/23/1840	3/26/1840	
216	Kiefer, Christine Katherine	F	Eckert	Karl	8/02/1819	1/27/1843	Heininigen, Kingdom of Wurtemberg
547	Kiefer [infant or child]					10/28/1850	
215	Kiefer [stillborn]	F			1/17/1843	1/17/1843	Allegheny
865	Klary, Franz	M			2/05/1860	5/04/1860	
558	Klaus (Sen.), Johannes	M		Maria nee Lephardt (Dec.)	5/03/1773	4/04/1851	Niederstätten, St. Gallen, Switzerland
731	Klaus, Eduard	M			1/1855	7/18/1855	
894	Klaus, Friedrich	M		Johanna nee Hartze	1/01/1814	3/13/1861	Letzungen, Canton Bern, Switzerland
343	Klaus, Georg Washington	M			4/26/1846	12/03/1846	
771	Klaus, Johanna Sophia	F			5/15/1853	4/11/1857	
246	Klaus, Rosine	F			3/17/1842	10/02/1843	
99	Klingenschmidt [unchristened]	M			5/06/1838	5/09/1838	
347	Knagg, Katharina	F			11/6/1846	1/10/1847	
777	Knagg, Katharina	F	Dietrich	Heinrich	4/10/1806	7/13/1857	Holzburg, Amt Naukirchen
186	Knapp, Anna Elisabeth Katherine	F			3/29/1841	9/16/1841	
832	Knapp, Heinrich	M		Katharina nee Dietrich	2/1805	7/14/1859	Külshausen, Kurhessen
171	Knapp, Heinrich	M			3/05/1836	3/15/1841	
234	Knapp, Johannes	M			4/17/1842	8/11/1843	
241	Knapp, Wilhelm Heinrich	M			7/04/1842	9/12/1843	
460	Knauff, Maria Auguste	F			6/03/1849	7/11/1849	
268	Köberer, Johann Michael	M			9/16/1844	10/12/1844	
887	Koch, Elisabeth	F			11/30/1859	11/16/1860	
360	Kogg, Katharina Barbara	F	Heinrich	Jacob	8/12/1792	5/01/1847	Zinsweiler, Elsaß
287	Köhelein, Georg Heinrich	M		Rosine nee Wernli	1/23/1814	7/06/1845	Thierburg, Oberamt Künzeler, Kingdom of Württemberg
390	Köhler, Heinrich	M			1/16/1844	12/16/1847	Mercersburg, Franklin Co., Pennsylvania
866	Köhler, Johannes	M		Anna Elisabeth nee Dönch	3/26/1829	6/02/1860	Amt Seeberg
253	Kolires, Friedrich Wilhelm	M			9/24/1843	4/23/1844	
471	König, Christine	F	Flach	Bernh. (Dec)	4/01/1780	8/28/1849	Zugweiler, Elsaß
175	Kopp, Ludwig	M		Anna Elisabeth nee Moritz	10/12/1759	5/10/1841	Bucks County, Pennsylvania
463	Kragg, Joseph Franz Albert	M			4/25/1849	7/18/1849	
351	Krail, Anna Maria	F	Krausfogt	Yes (died 4/07/1846)	1820	2/04/1847	
871	Kredel, Emil Theodor	M			4/12/1860	7/06/1860	
145	Kremer, Wilhelm [age unknown]	M				3/29/1840	
736	Krengel, Wilhelm	M			8/1854	11/23/1855	
131	Kress, Katharine Elisabet	F			12/12/1838	7/21/1839	

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
851	Kronmüller, Rosine	F			9/15/1858	1/02/1860	
515	Krüffi, Bertha	F			9/23/1849	7/23/1850	
310	Krumfuß [stillborn]	M			12/18/1845	12/18/1845	
240	Küllmer, Friedrich	M			9/05/1843	9/09/1843	
559	Kunigunde, Magdalena	F			3/18/1846	4/17/1851	
49	Kuntz, Christian	M			3/06/1835	7/06/1836	
393	Kunz, Matthias	M		Johanna nee Baumann (Dec.)	1/18/1786	12/25/1847	Erbstatten, Oberamt Marbach, Kingdom of Württemberg
697	Kurb, Karoline	F			9/26/1853	10/26/1854	
205	Kurner, Katherine	F			12/18/1841	6/29/1842	
516	Kurt, Christine	F			8/08/1850	8/14/1850	
66	Kurtz, George	M			8/04/1835	11/6/1836	
161	Kurz, Anna Maria	F			11/13/1840	11/23/1840	
30	Lane, Johannes	M	Yes		1/29/1786	3/5/1835	York Co., Pennsylvania
384b	Lang, John	M			12/31/1845	11/17/1847	
859	Lang, Karoline	F	Wilb	John	3/13/1819	3/09/1860	Hangenweiler, Elsaß, France
484	Langenbein, Andreas	M			11/08/1848	1/05/1850	Vanderburg Co, Indiana
480	Langenbein, Daniel	M			10/22/1846	12/8/1849	Vandersburg Co., Indiana
519	Lappe, Georg Martin	M			7/31/1849	8/18/1850	
652	Lappe, Georg	M			10/07/1852	8/04/1853	
276	Lautner, Rosina	F			1/15/1845	1/15/1845	
565	Legler, Rosina	F		Joachim (Dec.)	1794	4/31/1851	Lindthal, Canton Glarus, Switzerland
195	Lehmann, Johann Heinrich Jakob	M			4/22/1841	2/13/1842	
79	Lehmann, Johann	M			5/28/1836	4/11/1837	
65	Lehmann, Marie E.	F			8/21/1836	11/17/1836	
821	Lenckhard, Karl Jacob	M			12/26/1858	2/06/1859	
263	Lenz, Johannes Konrad	M			6/22/1843	8/01/1844	
251	Lenz, Karoline	F			7/16/1838	4/07/1844	
468	Lenz, Katharina Rosina	F	Herwig	Andreas	8/29/1800	8/10/1849	Baustadt, County Friedberg, Hessen Darmstadt
776	Lenz, Sophia	F			1/27/1856	6/28/1857	
843	Leonhard, Konrad Friedrich	M			10/29/1859	10/30/1859	
782	Letzinger, J.C.	M			1821	9/1857	Swiss Canton Basel Land
426	Leyler, Andreas	M		Maria Margarethe nee Müller	7/24/1824	10/4/1848	Deisbach (Gemeinde) Betschenarder, Canton Glarus
892	Limgreber, Konrad	M			1/24/1861	2/01/1861	
452	Löfler, Daniel	M		Maria nee Mangold	4/24/1824	4/13/1849	Heball, County Hemberg, Kurhessen
477	Lohmeier, Friedrich	M			12/16/1831	12/02/1849	Schlitz, Hessen Darmstadt
876	Long, Louise Rosina	F			3/12/1859	8/06/1860	
51	Loos, Anne Barbara	F			7/23/1830	7/23/1836	Freiedrickstown, Maryland
53	Loos, Johann	M			6/5/1834	8/23/1836	
638	Looth [infant]	F			2/25/1852	1/25/1853	
528	Loriba, Rosa Friederike	F			3/25/1849	8/25/1850	
141	Luetig [unbaptised]	M			9/21/1838	1/09/1840	
166	Luty, Anna	F			9/02/1835	1/18/1841	
38	Luidh*ot, Friedrika	F			5/31/1832	11/5/1835	
207	Lustmann [stillborn]	M			8/23/1842	8/23/1842	
432	Lutz, Karl	M			9/27/1847	11/20/1848	
525	Lutz, Ludwig	M			2/24/1850	8/24/1850	
2	Maclean, Johann	M			7/05/1833	7/20/1833	
797	Mahler, Johann Wilhelm	M			9/21/1856	3/30/1858	
87	Mangold, Margaretha	F			8/17/1830	9/03/1837	
611	Marx, Heinrich Ludwig	M			5/26/1852	8/07/1852	
556	Marz, Emil	M			3/1851	3/21/1851	
725	Matz, Georg	M			3/1854	5/31/1855	
857	Matz, Heinrich Albert	M			11/25/1858	2/14/1860	
280	Matzenbacher, Elisabeth	F			6/05/1828	3/12/1845	Kusel, County Rhine Bavaria
510	Matzenbacher, Elisabeth	F			1846	7/21/1850	
551	Matzenbacher, Johann	M		Margarethe nee Seitz	4/01/1801	1/04/1851	Kusel, Rhine Bavaria
893	Matzenbacher, Louis	M			4/19/1838	2/27/1861	Allcgheny
279	Matzenbacher, Maria	F			12/06/1834	3/01/1845	Kusel, Rhine Bavaria
42	Mauerer, Maria	F			11/7/1835	12/25/1835	

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
289	Maurer, Johannes	M		Maria nee Bauder	4/07/1793	7/16/1845	Bruggen, Canton Bern
23	Maurer, Maria	F			1/05/1834	9/09/1834	Allegheny City
761	Mayer, Michael	M		Magdalena nee Baier	9/06/1825	1/05/1857	Engelhofen, Kingdom Württemberg, Oberamt Jüldorf
27	McLean, James	M			5/06/1789	10/18/1834	Lancaster Co., Pennsylvania
281	Meerkamp, Anna Maria	F	Wolf	Johann David	4/18/1775	3/15/1845	Goßweiler, French Dept. Niederheim
43	Megan, Margarethe	F			6/5/1820	1/05/1836	Dalle, near Montbelier, France
336	Mehrlich, Valentin	M			2/27/1843	5/26/1846	Kleiershelm, Kingdom of Bavaria
648	Mendel, Joh. Gustav	M			3/06/1849	7/18/1853	Lawrenceville
738	Mentel, Katharina Elisabeth	F			11/1853	12/08/1855	
204	Mettetal, Maria Josephine	F			5/15/1842	6/27/1842	
133	Mettetal, Maria Anna	F			5/12/1839	7/26/1839	
228	Metz, Rosine	F			6/4/1843	6/15/1843	
198	Metz [stillborn]	F			5/14/1842	5/14/1842	
880	Meyer, Alfred	M			2/05/1858	9/07/1860	
863	Meyer, Charles August	M			8/02/1851	4/11/1860	Pine Township, Allegheny County
864	Meyer, Ferdinand	M			10/18/1852	4/18/1860	Pine Township, Allegheny County
827	Miersch, Amalie Hertha	F			8/27/1858	4/03/1859	
778	Miersch, Friedrich Herman	M			10/02/1856	7/20/1857	
845	Müller, Gerhard	M			7/25/1858	12/10/1859	
514	Möckel, Heinr. Gottlob	M			4/30/1849	7/30/1850	
636	Möckel, Wilhelm Franz	M			4/28/1850	12/21/1852	
869	Mol***, Susanne	F			10/25/1859	6/26/1860	
801	Molitor, Robert	M			5/22/1854	5/12/1858	
650	Moritz, Georg J.	M			4/29/1848	7/23/1853	
176	Moritz, Maria Salome	F			2/18/1838	5/19/1841	
196	Moritz, Maria Salome	F			9/26/1841	3/08/1842	
333	Mörkel, Juliane	F	Ebert	Ludwig	9/1820	4/23/1846	Lohlen, Principality of Schwarzburg-Rudolstadt
457	Mucker, Dorothea Elisabeth	F	Schmidt	Gottfried (Dec)	1797	6/04/1849	Klein Sömer, Scherring, Sachsen, Kingdom of Prussia
340	Mucker, Gottfried	M		Dorothea Elisabeth nee Schmidt	1795	7/17/1846	Büchel, Sachsen, Kingdom of Prussia
60	Mueller, ***				10/17/1836	10/23/1836	
50	Mueller, August	M			2/11/1835	4/11/1836	
107	Mueller, Christian Peter	M			1783	5/12/1838	Heilbronn, Wurtemberg
149	Mueller, Elisabeth	F			12/24/1836	5/04/1840	
105	Mueller, Lisatte	M			5/15/1837	7/30/1838	
533	Mügger, Louise	F			1824	8/27/1850	Sachswerfen, Hannover
236	Müller, Christine	F		Johannes	1776	8/13/1843	Pirmasen [Grand Duchy Hessen]
780	Müller, Heinrich	M			12/02/1839	9/01/1857	Wolf, County of Büdingen
560	Müller, Hermann	M			3/31/1848	4/17/1851	
710	Müller, Joh. H.	M			1/1851	1/31/1855	
768	Müller, Johann	M			2/24/1857	3/15/1857	
698	Müller, Jos. Jacob	M			2/1854	11/07/1854	
786	Müller, Katharina	F			1845	11/22/1857	
858	Müller, Katharine	F	Volte	Konrad	1/29/1801	3/06/1860	Pferdsbach, Grand Duchy Hessen, C. Büdingen
562	Müller, Margarethe Friederike	F			3/31/1843	4/26/1851	
277	Müller, Margarethe Luise	F			4/03/1840	2/04/1845	
278	Müller, Marie Magdalene	F			3/20/1843	2/05/1845	
563	Müller, Sara Isabella	F			12/23/1849	4/26/1851	
475	Müller, Wilhelmine	F			7/1832	11/4/1849	Pferdsbach, Hess Darmstadt
594	Mumhester [stillborn]				3/05/1852	3/05/1852	
628	Mury, *****	F			6/04/1844	11/15/1852	Weil, Baden
159	Muth, Anna Margaretha	F	Stang	Hartmann	3/14/1789	10/22/1840	Streb Fritz, Grand Duchy Hessen
165	Muth, Hartmann	M		Margarethe nee Stang (2nd wife)	8/14/1781	1/10/1841	Streb Fritz, Grand Duchy Hessen
274	Muth, Johannes	M			12/13/1844	12/14/1844	
409	Naumann, Christine	F			4/14/1848	6/16/1848	
109	Neben, Carolina	F			2/25/1837	9/6/1838	
839	Neck, Ida Flora	F			3/24/1859	9/17/1859	
12	Nette, Carl	M			11/07/1833	1/20/1834	Pittsburgh
104	Nickel, Rosina	F			3/28/1834	7/28/1838	

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
226	Niederer, Anna Maria	F	G**der	Hans Heinrich	1796	5/30/1843	**uneberg, Canton Basel
578	Niederer, Hans Heinrich	M		Anna Maria nee G**der (Dec.)	1/25/1775	8/25/1851	Heyden, Canton Appenzell, Switzerland
97	Niehaus, Johan Friedrich	M			4/23/1838	5/06/1838	
98	Niehaus, Jollana Margaretha Adelheid	F			4/23/1838	5/07/1838	
180	Noyes, Maria Anna	F			4/21/1836	6/18/1841	
244	Nuttelmann, Maria	F			9/06/1823	9/20/1843	Ströhen, Kingdom of Prussia
807	Oberieß, Katharina	F			4/28/1856	7/23/1858	Oberfranken, Kingdom of Bavaria
315	Ochse [infant]	M			1/06/1846	1/15/1846	
191	Oertal, Elisabeth Barbara	F			6/23/1837	12/23/1841	
190	Oertel, Karl	M			7/07/1834	10/06/1841	
789	Olbrich, Juliane Elisabeth	F			10/12/1857	12/30/1857	
663	Ollendorf, Ludwig	M			11/11/1851	1/18/1854	
723	Ollendorf, Maria Karolina	F			4/1851	5/15/1855	
3	Oplinger, Christian	M			10/01/1801	8/26/1833	Obersthau, Canton Bern, Switzerland
55	Oplinger, Margaretha	F	Jaggi	Johann	1792	8/31/1836	Frutigen, Canton Bern, Switzerland
841	Ort, Nicklaus	M			5/27/1835	10/01/1859	Willmersbach, Oberfranken, Bavaria
442	Pack [stillborn]	M			1/16/1849	1/16/1849	
227	Park, Elisabeth Katharine	F	Dörsam	Jakob (2nd husband)	11/20/1812	6/13/1843	Allersbach, Grand Duchy Hessen
348	Pekant [infant]	F			1/09/1847	1/12/1847	
856	Petereins, Heinrich	M			8/02/1859	2/05/1860	
284	Petersten, Johann Jakob Gustav	M			12/28/1843	5/11/1845	
158	Pfanner, Elisabeth	F			9/15/1837	10/10/1840	
773	Pfatztenbach, Maria Elisabetha	F	Schwartz	Johannes (2nd husband)	11/15/1787	5/29/1857	Bad Löwenstein, Duchy of Sachsen Meiningen
860	Pfeifer, Anna Margaretha	F	Lannert	Georg	1/27/1804	3/18/1860	Reinfeldhain, Grand Duchy Hessen, Kingdom of *****
386	Pfeifer, Anna Elisabeth	F			8/15/1846	11/27/1847	
388	Pfeifer, Barbara	F			11/12/1838	12/12/1847	
68	Pfeifer, Elisabetha	F	Acker	Yes	12/29/1813	12/29/1836	Holzhausen, Wurtemberg
17	Pfeifer, Georg Adam	M			12/28/1833	3/17/1834	
627	Pfeifer, Katharina	F		Georg	1824	11/05/1852	Gräfenburg, Kingdom of Bavaria
535	Pfeifer, Peter	M		Katharine nee Müller	5/11/1807	8/28/1850	Bauernwünsch, Hessen and Darmstadt
184	Pfeifer, Wilhelm	M			8/03/1840	8/31/1841	
113	Pfeiffer, Katherina	F	Heffe	Johann Martin	1803	9/17/1838	Lancaster, Pennsylvania
183	Pfisterer, Johann Karl	M		Katherina nee Stichling	2/03/1791	7/28/1841	Groschen, Kingdom of Wurtemberg
156	Pfisterer, Margarethe	F			8/03/1840	9/12/1840	
188	Pfisterer [unbaptised]	F			9/19/1841	9/19/1841	Bayardstown, Pennsylvania
645	Porter, Karl Eduard Peters	M			11/26/1848	6/05/1853	
838	Probst, Christian Heinrich	M			2/27/1858	8/25/1859	Pittsburg
583	Pulaner, Friedrich	M			8/26/1831	11/05/1851	Rümlingen, Canton Bern, Switzerland
584	Raht, Margarethe Frieder	F			1843	11/10/1851	
601	Ramser, Friedrich	M			1807	4/31/1852	Oberyl, Canton Bern, Switzerland
540	Ramser [stillborn]				9/04/1850	9/04/1850	
567	Rau, Dorothea	F	Reb.	Yes	1793	5/31/1851	Elsaß
537	Raub, Maria	F	Beck	Johannes	1788	9/02/1850	Schillersdorf, Elsaß
517	Rauf, Marg. Barbara	F			9/15/1849	8/15/1850	
632	Rausch, Sophia Pauline	F			12/19/1850	12/16/1852	
91	Rauth, Anna Maria	F			12/31/1834	10/7/1837	
576	Rawin, Wilhelmine Louise	F			8/23/1850	8/23/1851	
721	Regy, Johann W.	M			8/31/1854	4/14/1855	Allegheny
396	Reinemann, Karl August	M			9/09/1847	1/22/1848	
459	Reinemann, Louis Conrad	M			9/11/1848	6/11/1849	
381	Reinemann, Wilhelm Heinrich	M			4/24/1844	11/06/1847	
580	Reiner, Nicolaus	M		Anna nee Arn	3/29/1812	8/28/1851	Bendingen, Gem. Deyßbach, Canton Bern, Switzerland
319	Reiß, Anna Maria	F			9/07/1842	2/04/1846	Chambersburg, Franklin Co., Pennsylvania
577	Rendfeht, Sophia	F			8/18/1851	8/23/1851	
607	Renefecht [stillborn]				7/25/1852	7/25/1852	
369	Renter, Katharina Elisabeth	F			5/25/1847	6/29/1847	
327	Renter, Katharine Rosine	F			10/1845	3/1846	
462	Renter, Rudolf	M			5/03/1849	7/13/1849	

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
590	Retsch, Johanna Friederike	F			3/20/1852	1/20/1852	
382	Retsch, Johannes [infant]	M				11/10/1847	
849	Retsch, Karl Christian	M			7/04/1858	12/30/1859	
779	Retsch, Karoline	F			10/12/1856	8/16/1857	
848	Retsch, Katharina Friederike	F			2/28/1853	12/24/1859	Pittsburg
502	Retsch, Margaretha	F	Schulz	Kurt	2/19/1825	5/17/1850	Kaltennordheim, Sachsen Weimar
521	Retsch, Maria	F			1/22/1849	8/22/1850	
231	Reuning, Elise Maria	F	Schmidt	Heinrich	12/13/1810	8/01/1843	Ortenburg, Grand Duchy Hessen
75	Reuning, Fredrich Eduard	M			6/10/1836	3/10/1837	
203	Reuning, Heinrich Karl Wilhelm	M			12/11/1841	6/14/1842	
267	Reuning, Johannes	M		Maria Katherine nee Schneider (Dec.)	>1784	8/30/1844	Nidda, Grand Duchy Hessen
252	Reuning, Maria Katharine	F	Schneider	Johannes	6/27/1784	4/13/1844	Nidda, Grand Duchy Hessen
439	Reusch, Karl Otto	M			11/18/1844	12/18/1848	Kirchheim Untern Teck Württemberg
888	Richter, Eva Katharina	F			12/02/1860	12/04/1860	
520	Rickenbach, ***** Georg	M			2/21/1850	8/21/1850	
400	Rickenbach, Heinrich	M			8/15/1832	3/30/1848	
754	Rickenbach, Virginia Elisabeth	F			3/23/1855	9/25/1856	
500	Rieb, Louise Marg.	F		Friedr.	1/11/1802	4/15/1850	Babstadt, Gemeinde Trepflingen, Grand Duchy Baden
847	Riedinger, Wilhelmine	F			3/10/1858	12/15/1859	Allegheny
430	Riem, Johann Georg	M			11/7/1839	11/01/1848	
357	Riem [infant]				4/11/1847	4/19/1847	
26	Riggebach, Heinrich	M		Marian nee Voegtly	7/26/1795	12/06/1834	Geglugen, Canton Basel, Switzerland
619	Rigger (Ripper), Adam	M		Marg. nee Treutmann	3/1825	9/17/1852	Simbach, Hss. Darmstadt
163	Rinderbach, Johann Adam Jakob	M		Katherina nee Krabel	4/14/1793	12/07/1840	Rinderbach, Kingdom of Bavaria
846	Rindfuss, Sophia	F			12/08/1859	12/13/1859	
316	Rinni [stillborn]	M			1/15/1846	1/15/1846	Pittsburg
787	Robert, Anna	F			7/1856	11/27/1857	
488	Robinson [stillborn]				1/23/1850	1/23/1850	
884	Rodrian, Thomas	M		Maria nee Franz	11/04/1828	10/18/1860	Volksheim, Grand Duchy of Hessen
371	Roehrig, Elisabeth	F			3/12/1842	7/27/1847	
487	Rogges, Emilie Mathilde	F			10/04/1848	1/19/1850	
467	Röhrig, Barbara	F			8/06/1846	8/10/1849	
509	Röhrig, Eva	F			10/12/1839	7/09/1850	Tuchroth, Rhine Bavaria
384a	Röhrig, Magdalene	F			9/26/1844	11/16/1847	
345	Röser, Nicklaus	M		Anna Maria nee Marz	5/16/1777	12/24/1846	Darstal, Elsaß
78	Rosmann, Jacob	M			12/01/1836	4/18/1837	
411	Rossmann [stillborn]				7/06/1848	7/06/1848	
564	Roth, Eva Elisabeth	F	Boll	Wilhelm	1/06/1825	4/29/1851	Birkenau, Amt Lindenberg, Grand Duchy Hessen
571	Roth, Johannes Friedrich	M			5/31/1851	6/20/1851	
506	Roth, Margaretha	F			6/10/1849	6/01/1850	Allegheny
59	Ruch, Adam	M			7/31/1835	10/17/1836	
541	Rüdel, Sophia	F			12/7/1838	9/12/1850	Littelbrunn, Rhine Bavaria
261	Rudolph [stillborn]	M			7/27/1844	7/27/1844	
380	Rull, Philippine	F			7/1824	10/31/1847	Gerrenalb, Kingdom of Württemberg
474	Ruth, Johannes	M			8/24/1831	11/2/1849	Pferdsbach, Hess. Darmstadt
742	Sager, Jacob	M			3/06/1854	3/08/1856	Pine Grove, Schyler Co., Pennsylvania
127	Sariba [infant]	F			7/05/1839	7/05/1839	
458	Satler, Martin	M		Sophia nee Höht	1792	6/06/1849	Zinsenheim, Elsaß
416	Sauch [stillborn]				7/28/1848	7/28/1848	
423	Sauter, Elisabeth [infant]	F				8/24/1848	
767	Schädel, Dorothea	F			5/30/1854	3/15/1857	
167	Schaefer, Johannes	M			7/31/1840	1/28/1841	
824	Schaefer, Johannes	M		Margarethe nee Schramm	1826	3/05/1859	Flöten, Wurhof, County of Fulda
629	Schäfer, Christine	F			9/24/1851	11/20/1852	Singtkirchen, Switzerland
766	Schaffnit, Anna Karoline Virginia	F			11/23/1856	2/10/1857	
74	Schaffnit, Gottfried	M			2/26/1837	3/08/1837	
831	Schaffnit, Jefferson Friedrich	M			7/30/1854	6/11/1859	
22	Schaffnit, Johann Conrad	M		Elisabetha nee Maller	9/20/1799	8/16/1834	Berensbach, Region Dickburg, Duchy Hessen-Darmstadt

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
794	Schaffnit, Karl Walter	M			12/20/1857	3/13/1858	
643	Schaffnit [infant]				2/22/1843	4/24/1853	
538	Scharreck, Maria Elis.	F			3/03/1849	9/03/1850	
853	Schaub, Gottlieb	M			10/06/1858	1/15/1860	Stark Co., Ohio
665	Schaub, Kasper	M		Marg. nee Kaggarf	4/12/1793	2/01/1854	Lautersdorf, Sachsen Meinigen
62	Schauer, Christian	M			8/15/1835	11/09/1836	
752	Schelthaas, Elisabetha Katharina	F			10/10/1855	9/04/1856	
465	Schinkel, Anna	F			6/30/1847	8/05/1849	
672	Schlag, Karl	M			3/12/1854	3/25/1854	
408	Schleger [stillborn]				06/13/1848	06/13/1848	
485	Schlemann, Daniel	M		Dorothea nee Pflugger	12/28/1820	1/09/1850	Sooden, Kurhessen
769	Schlitz, Elisa Regina	F			11/24/1855	3/16/1857	
833	Schlupp, Benedikt	M		Barbara nee Probst	3/20/1802	7/16/1859	Rütti, Canton Bern, Switzerland
90	Schlupp, Maria	F			1/23/1825	10/13/1837	
61	Schlupp, Nikolaus	M		Anna nee Spar	11/6/1782	10/25/1836	Wengi, Canton Bern, *** Biren, Switzerland
392	Schmidt, August	M			8/03/1847	12/25/1847	
554	Schmidt, Benjamin	M		Mathilde nee Johnson	7/30/1824	3/19/1851	Tenestadt, Hessen
293	Schmidt, Johann Christian	M		Christine Elisabeth nee Bodin	9/15/1800	8/26/1845	Teunstadt, Sachsen, Kingdom of Prussia
39	Schmidt, Johanne Heinrich	M			11/2/1835	11/12/1835	
647	Schmidt, Josephine [infant or child]	F				7/20/1853	
493	Schmidt, Karl Wilh. Martin	M			9/26/1835	2/19/1850	
750	Schneider, Johann Jacob Edmund	M			5/23/1856	8/05/1856	
118	Schneider, Katherina	F	Schach	Yes	1754	3/10/1839	Easton, Lecha Co., Pennsylvania
679	Schneider, Maria Elis.	F			5/23/1852	8/08/1854	
255	Schneider, Martin	M			10/10/1843	6/05/1844	
604	Schnörr, Karl	M			4/26/1852	7/09/1852	
690	Schöffner [infant]				9/1853	9/26/1854	
523	Schoner, Anna Katharina	F			2/23/1848	8/23/1850	
802	Schöner, Jacob	M			7/21/1852	5/15/1858	
470	Schöner, Jacob	M				8/29/1849	
686	Schöner, Peter	M			9/15/1854	9/17/1854	
539	Schröder, Karl	M		Helena nee Jörgens	1/21/1819	9/04/1850	Fritzlar, Kurhessen
441	Schröder, Sophia	F			7/25/1847	1/08/1849	
530	Schröder, Valentin	M		Elis. nee Stughan	9/21/1814	8/26/1850	Fritzlar, Kurhessen
490	Schröder [infant or child]					1/29/1850	
324	Schroeder, Elisabeth	F			2/27/1846	2/28/1846	
588	Schubert, Auguste	F			2/01/1850	12/17/1851	
486	Schulz, Caroline Maria	F				1/13/1850	
309	Schulz, Wilhelm	M			9/08/1845	12/17/1845	
290	Schulze, Johann Wilhelm Ernst	M		***** nee Brintenhain	1/16/1775	7/17/1845	Ballenstadt, Principality of Anhalt Bernburg
640	Schuster, Elisabeth	F			3/08/1851	2/28/1853	Westhofen, Elsaß
646	Schuster, Salome	F			9/06/1849	06/13/1853	Westhofen, Elsaß
605	Schütz, Magdalena	F			12/05/1851	7/15/1852	Langenburg, Württemberg
162	Schwarz, Karl	M			9/28/1840	11/25/1840	
822	Schwer, Katharina	F			1/29/1859	2/08/1859	
128	Schwinn, Christine Phillipine	F			5/27/1837	7/06/1839	
655	Seiner, Maria [infant or child]	F				10/03/1853	
116	Seip, Maria Elisabetha	F			4/28/1825	11/10/1838	Reinheim, Diesburg, Duchy Hessen Darmstadt
355	Sele [stillborn]				4/16/1847	4/16/1847	
599	Sersee [stillborn]				4/22/1852	4/22/1852	
362	Siebert [infant or child]					5/25/1847	
36	Socin, Elisabethe	F	Spieß	Heinrich	8/16/1795	9/18/1835	Armalengen, Canton Basel, Switzerland
455	Somer, Karl Friedr. August	M			3/10/1844	5/8/1849	Heischbach, Hessen and Kussen
701	Soren, Heinrich	M		Elis. nee Spigt (Dec.)	1/17/1786	11/25/1854	Winterhagen, Basel, Switzerland
762	Spannknebel, Anna Kath. Elisabeth	F			6/02/1855	1/19/1857	
597	Staker, David	M			1849	4/08/1852	Wotteger, Canton Bern, Switzerland

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
760	Staub, Maria Anna	F			5/14/1851	12/22/1856	Allegheny
587	Staud, Christine Rosina	F			6/10/1851	12/10/1851	
282	Steiner, Johann David	M		Katharine Barbara nee Bauer	12/17/1809	3/23/1845	Lonweiler, Oberamt Neineburg, Kingdom of Württemberg
150	Stilli, Johannes	M		Maria Elisabeth nee Hartmann	10/16/1800	5/10/1840	Boergen, Switzerland, Canton Aargau
747	Stilli, Maria Elisabetha	F	Hartmann	Johannes (Dec.)	12/27/1790	6/22/1856	Herznach in Scheiningen, Canton Aargau
7	Straus, Jakob	M		Married twice	1771	11/10/1833	Lancaster Co., Pennsylvania
796	Sturm, Georg Heinrich	M			5/11/1857	3/26/1858	
637	Suter, Margarethe	F	Ohlinger	Nicklaus	2/15/1815	1/02/1853	Sigridswyl, Canton Bern, Switzerland
472	Suter, Margarethe	F			8/12/1848	9/5/1849	
617	Suter [child]				3/1851	9/04/1852	
630	Sutter, Carl Ludwig	M		Sarah Jane nee Gibson	2/10/1816	11/24/1852	Erbesbachsheim, Grand Duchy Hessen
642	Sutter, Henriette [child]	F				3/1853	
57	Sutter, Margaretha	F			9/04/1836	9/10/1836	
505	Synierer, Wilhelm Karl	M		None	1821	5/25/1850	Altlustheim, Grand Duchy Baden
208	Thielbeul, Anna Rosina	F			3/10/1842	9/10/1842	
187	Thielbeul, Christine Wilhelmine	F			1834	9/18/1841	
635	Thomann, David Wilhelm	M		Elisabeth nee Sanfer	1813	12/29/1852	St. Immer, Canton Bern, Switzerland
456	Thomas, Katharina	F			4/11/1849	5/22/1849	
1	Thomas, Ludwig Phillip	M			10/20/1831	6/15/1833	Belle*** Elsass, France
8	Torry, David	M			11/17/1833	12/10/1833	
298	Traband, Johann Wilhelm	M			3/10/1842	10/06/1845	Philadelphia
296	Traband, Johanne Friederike	F	Schrucker	Johs.	6/30/1816	9/15/1845	Muhlstadt, Grand Duchy Hessen
314	Tröser, Elisabeth Katharina	F			4/21/1845	1/03/1846	
140	Trueb [stillborn]	M			1/18/1840	1/18/1840	
727	Tschopp, Anna	F	Baumann	Daniel (2nd husband)	8/02/1771	6/30/1855	Waldenburg, Basel
651	Tschudi, August	M			11/10/1849	8/04/1853	Allegheny
740	Tschudi, Christa	F			10/1854	1/14/1856	
870	Tschudi, Jacob Wilhelm	M			9/10/1857	7/03/1860	
728	Urban, Elisabeth	F			7/1847	7/06/1855	
744	Urban, Georg	M			4/28/1809	3/16/1856	Weinberg, Elsaß
403	Urban, Karl Peter	M			3/07/1848	5/07/1848	
481	Vaught, Wilhelm	M			9/29/1848	12/10/1849	
814	Vetting, Anna Auguste Christiane	F			8/04/1858	10/11/1858	
815	Vetting, Verena	F	Spüler	Eduard	8/25/1826	10/13/1858	Ricklingen, Lurach, Canton Aargau, Switzerland
151	Voegtly, Anna Barbara	F			10/22/1839	6/20/1840	
106	Voegtly, Daniel	M			4/04/1838	7/30/1838	
239	Voegtly, David	M			6/06/1843	9/05/1843	
243	Voegtly, Johannes Jakob	M			3/16/1833	9/16/1843	Allegheny
671	Voegtly, Maria Henr.	F			3/06/1854	3/07/1854	
82	Voegtly, Samuel	M			5/20/1836	5/06/1837	
854	Voettner, Philippine Justine	F			11/09/1858	1/19/1860	
783	Vogel, Elisabeth	F			6/15/1856	9/24/1857	
891	Vogelsang, Friedrich	M			4/04/1858	12/30/1860	
370	Vögtly, Carl	M			2/16/1847	6/30/1847	
497	Vois [infant or child]					3/26/1850	
557	Voltz, Elisabeth	F			2/28/1851	3/24/1851	
123	von Hess, Karl	M			2/23/1839	5/22/1839	
401	von Sende, Johann Heinrich	M			8/03/1847	4/04/1848	
513	von Sende, Johann Simon	M			11/29/1849	7/29/1850	
137	von Westernhagen, Elise	F			9/19/1839	9/27/1839	
28	Vornoff, Jakob	M			1/14/1835	1/16/1835	
443	Wäckel, Christine Henriette	F			9/24/1847	1/18/1849	
763	Walter, Anna Katharina	F			1/05/1857	1/21/1857	
743	Walter, Anna Margaretha	M			12/18/1855	2/21/1856	
359	Walter, Elisabeth	F	Seitz	Erhard	2/16/1810	4/24/1847	Kusel, Rhine Bavaria
356	Walter, Friedrich	M				4/1847	
804	Walter, Johann	M			3/10/1858	6/10/1858	
473	Wältz, Anna Barbara	F	Hermann	N. Klaus (2nd husband)	2/1781	9/19/1849	Auswyl, Canton Bern, Switzerland
353	Walzer [unbaptised]	M			2/11/1847	2/14/1847	
73	Watler, Katharina	F			8/02/1834	2/25/1837	Belin, Sommersette Co., Pennsylvania

Appendix 1—Continued.

Record no.	Name	Sex	Maiden name	Spouse	Date of birth	Date of death	Place of birth
625	Weber, Emma	F			9/20/1852	10/04/1852	
739	Weber, Katharina	F	Baubacher	Philipp (Dec.)	12/31/1789	1/06/1856	Eschburg by Bamberg
399	Weber, Philipp	M		Katharine nee Laubacher	6/01/1784	2/14/1848	Schönburg, Dep. Strasburg, Elasaß
633	Wehe [stillborn]				12/19/1852	12/19/1852	
568	Weiland, Kurt	M			5/24/1851	6/07/1851	
146	Weitershausen, ***	F			5/04/1840	5/05/1840	
125	Weitershausen, Gottfried Friedrich	M			10/16/1838	7/2/1839	Chambersburg, Franklin Co.
262	Weitershausen, Marie Luise	F			9/28/1843	7/26/1844	
	Albertine Ottilie						
222	Well, Anna Marie	F	Grael	Johannes (Dec.)	2/27/1777	4/08/1843	Wolf, near Buedingen, Grand Duchy Hessen
494	Wendel, Johann Adam Jakob	M		Sybilla nee Wangt	2/24/1811	3/01/1850	Malsfeld, Co. of Melzungen, Kurhessen
71	Wentel, Katherina	F	Seeger	Peter	10/21/1816	1/10/1837	Pfingstadt, Duchy Hessen Darmstadt
322	Wernli, Anna Marie	F	Zimmerle	Johann Heinrich (Dec.)	ca. 1796	2/19/1846	Oftingen, Canton Glarus, Switzerland
122	Wernli, Johann Heinrich	M		Ann nee Zimmerle	11/20/1787	5/10/1839	Thalheim, Canton Aargau, Switzerland
303	White (Blanc), Thomas	M		Meline Garreux (2nd wife)	1799	10/27/1845	Kingdom of France
288	Wierheller, Johann Ludwig	M			8/28/1843	7/14/1845	
746	Wilhelm, Dorothea	F	Pflüger	Heinrich	7/15/1820	6/13/1856	Elbingen, Kurhessen, County Witzhausen
722	Wilhelm, Dorothea	F			6/1854	4/29/1855	
749	Wilhelm, Loretta	F			5/21/1856	7/08/1856	
331	Will, Philipp	M		Salome nee Hügel (Dec.)	4/1783	4/01/1846	Hengenweiler, Dept. de la Meurthe, Kingdom of France
247	Will, Salome	F	Hügel	Philipp	8/1792	12/04/1843	Hangerweiler, Kingdom of France
499	Willer, Louis	M			1792	4/15/1850	Königsberg, Prussia
318	Wingerd [infant]	M			11/30/1845	1/26/1846	
202	Winter, Anna Maria	F			6/04/1842	6/11/1842	
297	Winter, Heinrich	M		Anna Barbara nee Faas (Lorbach) (2nd wife)	8/07/1811	9/17/1845	Henzenheim, Grand Duchy Hessen
799	Wolf, Alice Katharina Elisabeth	F			12/20/1857	4/09/1858	
770	Wolf, Anna Margaretha	F			5/1798	3/17/1857	Oberbethdorf, Minden *****, France
18	Wolf, David	M			6/17/1834	6/30/1834	
661	Wolf, Joh. Jacob	M			5/08/1846	1/12/1854	
569	Wolf, Karoline	F			12/19/1850	6/17/1851	
757	Wolf, Maria Emma	F			4/05/1856	10/08/1856	
479	Wolf, Sophia	F			11/06/1849	12/06/1849	
600	Wolz, Elisabeth	F			3/11/1852	4/16/1852	Pittsburgh
772	Wörkel, Pauline Karoline	F			3/13/1854	5/03/1857	
717	Worthington, Joseph	M			2/1855	3/19/1855	
449	Worthington, Samuel Aaron	M			8/01/1848	3/12/1849	
64	Wuestenberg, Christian Friedrich	M			11/10/1832	11/10/1836	
	Moritz Otto						
311	Ziegler, Heinrich	M			3/17/1842	12/20/1845	
89	Zimmer, Elisabetha	F			9/18/1837	9/28/1837	
250	Zimmerle, Johann Jakob	M		Maria Elisabeth nee Rinderknecht	7/20/1788	3/20/1844	Oftingen, Switzerland
40	Zimmerle, Rossina	F			12/12/1835	12/14/1835	
656	Zinsmeister, Jacob	M		Sybilla nee Vaugt (Werkl) (2nd wife)	4/14/1820	10/21/1853	Muhlburg, Rhine Bavaria
5	Zinsmeister, Johannes	M			1812	9/16/1833	Grossaffalter, Canton Bern, Switzerland
232	Zinsmeister, Johannes	M			11/23/1842	8/03/1843	
295	Zinsmeister, Nikolaus	M		Anna nee Marty	1787	9/08/1845	Affoltern, Province Aargau, Switzerland
438	Zoller, Katharina Barbara	F			08/02/1845	12/15/1848	
254	Zoller, Sophia	F			5/29/1844	6/04/1844	
527	Zürnher, Sophia	F	Schneider	Franz	7/30/1825	8/25/1850	Fritzlar, Kurhessen
466	Zweifel, Johannes	M			3/19/1846	8/08/1849	Sattnies, County Woradelburg, Austria

Appendix 2

Key to the Expression of Non-Metric Traits

Accessory transverse foramina in seventh cervical vertebra	1=complete, single bone 2=bipartite 3=tripartite 4=partial 9=unobservable	2=complete 9=unobservable
Atlas bridging		location
lateral bridging		0=absent
0=absent		1=near mandibular foramen
1=partial		2=center of groove
2=complete		3=both bridges described in 1 and 2, with hiatus
9=unobservable		4=both bridges described in 1 and 2, no hiatus
Infraorbital suture		9=unobservable
0=absent		Parietal foramen
1=partial		0=absent
2=complete		1=present, on parietal
9=unobservable		2=present, sutural
Mandibular torus		9=unobservable
0=absent		Pterygo-alar bridge
1=trace (can palpate but cannot see)		0=absent
2=moderate: elevation 2–5 mm		1=trace (spicule only)
3=marked: elevation more than 5 mm		2=partial bridge
9=unobservable		3=complete bridge
Mastoid foramen		9=unobservable
location		Pterygo-spinous bridge
0=absent		0=absent
1=temporal		1=trace (spicule only)
2=sutural		2=partial bridge
3=occipital		3=complete bridge
4=both sutural and temporal		9=unobservable
5=both occipital and temporal		Septal aperture
9=unobservable		0=absent
number		1=small foramen (pinhole) only
0=absent		2=true perforation
1=1		9=unobservable
2=2		Supraorbital structures
3=more than 2		supraorbital foramen
9=unobservable		0=absent
Mental foramen		1=present
0=absent		2=multiple foramina
1=1		9=unobservable
2=2		supraorbital notch
3=more than 2		0=absent
9=unobservable		1=present, less than one-half occluded by spicules
Metopic suture		2=present, more than one-half occluded by spicules
0=absent		3=present, degree of occlusion unknown
1=partial		4=multiple notches
2=complete		9=unobservable
9=unobservable		Sutural bones
Multiple infraorbital foramina		apical bone, asterionic bone, bregmatic bone, coronal ossicle, epipteric bone, lambdoid ossicle, occipito-mastoid suture
0=absent		
1=internal division only		
2=two distinct foramina		
3=more than two distinct foramina		
9=unobservable		
Mylohyoid bridge		
degree		
0=absent		
1=partial		

Appendix 2.—Continued.

ossicle, parietal notch bone, sagittal ossicle	1=foramen only	2=1 large plus smaller foramina
0=absent	2=full defect present	3=2 large
1=present	9=unobservable	4=2 large plus smaller foramina
9=unobservable	Zygomatico-facial foramina	5=1 small
Tympanic dehiscence	0=absent	6=multiple small
0=absent	1=1 large	9=unobservable

Appendix 3

Summary of Individual Burial Information

Burial no.	Sex	Age at death (yrs)	Bones present	Comments	Burial no.	Sex	Age at death (yrs)	Bones present	Comments
2	female?	40–50	Y	160.6 cm (5 ft 3.3 in)	55	indeterminate	11–12.8	Y	caries hypoplasia
3	male	30–45	Y		56	indeterminate	~9.5	Y	caries
4a	female?	35–50	Y		57	male?	23–28	Y	caries, 174.9 cm (5 ft 8.8 in)
4b	female?	45+	Y		58	indeterminate	0	Y	
5	indeterminate	0	Y		59	indeterminate	~0.7	Y	
6	indeterminate	~2.8	Y		61	male	30–40	Y	caries, 168.8 cm (5 ft 6.5 in)
7	indeterminate	0–1	N		62	male	20–30	Y	caries, hypoplasia, 166.4 cm (5 ft 5.5 in)
8	indeterminate	1.5–1.8	Y		63	male?	30–35	Y	
9	indeterminate	0	Y		64	indeterminate	0–1	N	
10	indeterminate	1.3–1.8	Y		65	indeterminate	~2.8	Y	caries
11	indeterminate	0.1–0.2	Y		66a	indeterminate	~1	Y	
12	indeterminate	fetus	Y		66b	indeterminate	fetus	Y	
13	indeterminate	2–3	Y	caries	67a	indeterminate	1–2	N	
14	indeterminate	0.6–0.8	Y		67b	indeterminate	0–0.5	N	
15	indeterminate	unknown	N	amputated leg?	71	indeterminate	~0.7	Y	
16	indeterminate	0.5–0.8	Y		72	indeterminate	0–5	Y	
18	male	45–60	Y	caries, pipewear? 171.8 cm (5 ft 7.7 in)	73	indeterminate	0–2	Y	
19	indeterminate	0	Y		74	indeterminate	3.5–4.8	Y	hypoplasia
20	indeterminate	0	Y		75	indeterminate	0–1	Y	
21	indeterminate	0.3–0.7	Y		76	indeterminate	0–0.5	N	
22	male	45–50	Y	caries, healed fracture of right tibia/fibula	77	indeterminate	0.1–0.5	Y	
23	female	22–25	Y	hair present, hypoplasia	78	indeterminate	0.1–0.5	Y	
24	indeterminate	0	Y		79	indeterminate	2–4	Y	caries
25	indeterminate	0	Y		80	indeterminate	0.1–0.5	Y	
26	female	25–35	Y	caries, hypocalcification	81	indeterminate	0–0.5	Y	
27	male	22–32	Y	caries, 163.0 cm (5 ft 4.2 in)	82	indeterminate	0.3–0.7	Y	
28	male	45–70	Y	159.3 cm (5 ft 2.8 in)	84	male	25–35	Y	caries
29	male	20–40	Y		85	indeterminate	0–1	Y	
30	male	45–55	Y	caries, hypoplasia	86	indeterminate	0–2	Y	
31	indeterminate	40–80	Y		87	indeterminate	0.2–0.3	Y	
32	male	50–85	Y	caries, hypoplasia, metatarsal lesion, 171.4 cm (5 ft 7.4 in)	88	indeterminate	0.5–1.0	Y	
33	male?	35–40	Y	hypoplasia	89	indeterminate	0	Y	
34	male	35–45	Y	caries, healed fractures of left distal radius and ulna, 172.1 cm (5 ft 7.8 in)	90	indeterminate	0–0.5	N	
35	indeterminate	2.0–2.3	Y		91	indeterminate	0–2	Y	
36	indeterminate	0.6–0.8	Y		92	indeterminate	~0.5	Y	
37	indeterminate	0–1	N		93	indeterminate	0.1–0.5	Y	
38	indeterminate	0–3	N		94	indeterminate	1–1.3	Y	
40	indeterminate	~0.3	Y		95	indeterminate	6–6.3	Y	
41	indeterminate	2–4	N		96	male	40–45	Y	pipewear
43	indeterminate	fetus	Y		97	indeterminate	0–4	N	
45	indeterminate	0.5–0.8	Y		98	indeterminate	1–1.3	Y	
46	indeterminate	2–3	Y		100	female?	~16.5	Y	caries, hypoplasia
47	female	10.5–12.5	Y	caries, earring, asymmetric sacrum	101	female	30–40	Y	caries
48	male	25–32	Y	caries, hypoplasia	102	indeterminate	0.3–1	Y	
49	female	20–30	Y	caries	103	indeterminate	0.3–1	Y	
50	indeterminate	20–80	Y	possible amputated leg	104	female?	30–70	Y	caries
51	indeterminate	6.8–8	Y		107	indeterminate	1–2	Y	
52	female?	20–30	Y	caries, hypoplasia	108	male	25–30	Y	
53	female	35–50	Y	caries, hypoplasia	109	indeterminate	0.1–0.2	Y	
54	male	55–75	Y	rosary, caries, hypoplasia, 163.5 cm (5 ft 4.3 in)	111	male	30–35	Y	caries, 181 ± 3.3 cm (5 ft 9.6 in–6 ft)
					112	male	40–50	Y	healed metacarpal fracture, pipewear, 170.7 cm (5 ft 7.2 in)
					113	indeterminate	20–85	N	
					114	female	10–10.5	Y	earrings

Appendix 3.—Continued.

Burial no.	Sex	Age at death (yrs)	Bones present	Comments	Burial no.	Sex	Age at death (yrs)	Bones present	Comments
115	indeterminate	0–1	Y		181	indeterminate	0	Y	
117	female	30–35	Y	caries, hypoplasia	182	indeterminate	20–80	N	
118	male	35–40	Y	caries, hypoplasia, pipewear	183	female?	40+	Y	healed fracture of right femur, healed infection right tibia, healed trauma of left tibia and fibula
121	indeterminate	~0.2	Y						
122	indeterminate	~2.9	Y						
123	female	30–35	Y	caries	184	indeterminate	0	Y	
124	male	28–35	Y	caries	185	indeterminate	~1.4	Y	
126	female	25–30	Y	earring, caries, hypoplasia	186	indeterminate	1.1–1.5	Y	hair
127	indeterminate	17–85	Y		187	indeterminate	0	Y	
128	indeterminate	~3	Y	caries	188	indeterminate	0	Y	
129	indeterminate	0–1	N		189	indeterminate	0–1.5	N	
130	indeterminate	0	Y		190	indeterminate	0	Y	
131	indeterminate	fetus	Y		191	indeterminate	~1.3	Y	
132	male	25–30	Y	caries	192	male	60–80	Y	caries, fusion of vertebrae
133	indeterminate	0	Y		193	indeterminate	0–0.3	Y	
134	indeterminate	~0.7	Y		194	indeterminate	0	Y	
135	indeterminate	~0.7	Y		195	male	45–55	Y	
136	indeterminate	0	Y		196	indeterminate	0–2	Y	
137	indeterminate	0–0.5	Y		197	indeterminate	fetus	Y	
138	indeterminate	~1.5	Y		198	indeterminate	0.8–1	Y	
139	indeterminate	~1.8	Y		199	indeterminate	0	Y	
140	indeterminate	~1.8	Y		200	indeterminate	0–1.5	Y	
141	indeterminate	~0.3	Y		201	indeterminate	0–1	Y	
142	indeterminate	0	Y		202	indeterminate	10–12.3	Y	hair, shovel-shaped lateral incisors
143	indeterminate	~2	Y		203	indeterminate	~0.2	Y	
144	indeterminate	~0.8	Y		204	indeterminate	0–1.5	Y	
145	indeterminate	~2.9	Y	caries, hypoplasia	205	indeterminate	0.3–0.8	Y	
146	indeterminate	2.5–3	Y	caries	206	indeterminate	0–0.5	Y	
147	indeterminate	6–8	Y	caries, hypoplasia, peg-shaped lateral incisors	207	indeterminate	3.5–5	Y	
					208	indeterminate	1.5–2	Y	
148	indeterminate	~0.3	Y		209	indeterminate	0	Y	
150	indeterminate	0	N		210	indeterminate	4.8–6.3	Y	caries
151	indeterminate	0	N		211	indeterminate	~0.7	Y	
152	indeterminate	4–5	Y	caries, hypoplasia	212	indeterminate	~1.1	Y	
153	indeterminate	~0.5	Y		213	indeterminate	1–1.3	Y	
154	indeterminate	6.5–7.8	Y	caries, hypoplasia	214	indeterminate	2–3	Y	
155	male	28–35	Y	healed left tibia fracture	215	indeterminate	~1.5	Y	
156	indeterminate	1–3	N		217	indeterminate	4.8–6.3	Y	caries, hypoplasia
157	indeterminate	0	N		218	indeterminate	0.8	Y	
158	indeterminate	~0.2	Y		219	indeterminate	0	N	same grave as burial 224 (stillborn twins?)
159	indeterminate	~0.2	Y						
160	indeterminate	0	Y		220	indeterminate	~0.2	Y	
161	indeterminate	2.5–2.8	Y		221	indeterminate	1–1.8	Y	seed beads around cranium, hypoplasia
162	indeterminate	~0.4	Y		222	indeterminate	0	Y	
163	female?	25–35	Y	caries	223	indeterminate	2–6	N	
164	male	22–26	Y	hair, caries	224	indeterminate	0	N	same grave as burial 219 (stillborn twins?)
165	indeterminate	2–2.5	Y	caries					
166	indeterminate	~1.4	Y		228	indeterminate	1–5	N	
167	male?	15–16	Y	hair, caries, hypoplasia	229	indeterminate	0–1	Y	
168	indeterminate	0	N		230	indeterminate	0–1	Y	
169	indeterminate	13–17	N		231	indeterminate	~3.5	Y	
170	indeterminate	2–5	N		232	indeterminate	~5.3	Y	
171	indeterminate	8–10	N		233	indeterminate	0–1	Y	
172	indeterminate	0–1.5	N		235	indeterminate	0–2	Y	
173	indeterminate	0	N		236	indeterminate	~0.5	Y	
174	indeterminate	2–4	N		237	indeterminate	2–2.3	Y	
175	indeterminate	4.8–5.3	Y		239	indeterminate	~0.9	Y	
176	indeterminate	~2.3	Y	caries, hypoplasia	240	indeterminate	~0.2	Y	
177	indeterminate	~0.8	Y		241	indeterminate	~0.8	Y	
178	male	25–35	Y	caries	243	indeterminate	~0.2	Y	
179	indeterminate	~0.4	Y		244	indeterminate	0	N	
180	indeterminate	0–2	Y		245	indeterminate	~0.8	Y	

Appendix 3.—Continued.

Burial no.	Sex	Age at death (yrs)	Bones present	Comments	Burial no.	Sex	Age at death (yrs)	Bones present	Comments
246	indeterminate	1.8–2.3	Y		310	indeterminate	7–9.6	Y	caries, hypoplasia
247	indeterminate	0	Y		311	indeterminate	fetus–0	Y	
248	indeterminate	0–1	Y		312	female	~15	Y	hairpin, hair, caries
249	indeterminate	~0.7	Y		313	indeterminate	0–3	Y	
250	indeterminate	0.5–2	Y		314	indeterminate	~0.5	Y	
251	indeterminate	0–0.5	N		315	male?	25–35	Y	caries
252	indeterminate	~0.9	Y		316	male	30–40	Y	caries
253	indeterminate	2.8–3.5	Y	hair	317	male?	23–40	Y	caries, hypoplasia, pipewear
254	indeterminate	0–1	Y		318	male	25–30	Y	caries
255	female?	40–55	Y	caries, hypoplasia	320	male	23–28	Y	caries
256	male?	35–45	Y	caries	321	female?	45–50	Y	caries
258	male	25–30	Y	caries	322	male	20–24	Y	caries, hypoplasia
259	male	50–70	Y	caries, hair	323	indeterminate	0.5–0.8	Y	
260	indeterminate	2.5–3.5	Y	caries	324a	female	25–30	Y	caries, hypoplasia
261	indeterminate	~0.5	Y		324b	indeterminate	20–40	Y	caries
262	indeterminate	0–1.5	N		325	indeterminate	40–55	Y	caries
263	male	30–40	Y	caries, periosteal bone formation on left tibia	326	female?	~18.5	Y	caries
264	male?	50–60	Y		327	indeterminate	~12.8	Y	caries, hypoplasia
265	indeterminate	~0.5	Y		328	male	40–45	Y	caries, hypoplasia, periosteal bone formation on tibia and fibula, 177 cm (5 ft 9.7 in)
266	indeterminate	>10	Y		329	indeterminate	20–60	Y	
267	indeterminate	0–0.5	Y		330	female	40–50	Y	
268	indeterminate	0–2	Y		331	male	~15	Y	caries, hypoplasia
269	indeterminate	~1.6	Y		332	indeterminate	0–1.5	N	
270	indeterminate	0.8–1	Y		333	indeterminate	0–1.5	N	
271	indeterminate	0–2	Y		334	indeterminate	0–1.5	N	
272	indeterminate	0	N		335	indeterminate	0.2–0.3	Y	
273	indeterminate	4.5–5.1	Y		336	indeterminate	1.5–2.1	Y	
274	indeterminate	1–1.5	N		337	indeterminate	13–60	Y	
275	indeterminate	~1.6	Y		338	indeterminate	0–1.5	N	
276	male?	35–45	Y	caries, hypoplasia	339	indeterminate	2–5	N	
277	indeterminate	~0.2	Y		340	indeterminate	0	N	
278	indeterminate	0–1.5	N		341	indeterminate	0–0.5	N	
279	indeterminate	0–1.5	N		342	indeterminate	0–3	N	
280	indeterminate	~10	Y	caries	343	indeterminate	0–1.5	N	
281	female	19–23	Y	caries, hypoplasia	344	indeterminate	0–1	Y	
282	indeterminate	20–60	Y		345	male	~30	Y	caries, 169 cm (5 ft 6.5 in)
283	female	55–70	Y		346	male	23–27	Y	caries, hypoplasia, hair, supernumerary tooth, 172 cm (5 ft 7.7 in)
284	indeterminate	0–2	N		347	indeterminate	25–35	Y	caries, hair
285	indeterminate	0–0.3	Y		348	male	27–35	Y	coins near orbits, desiccated tissue, healed fractures of ulnae, hair, 166 cm (5 ft 5.4 in)
286	indeterminate	0.3–0.4	Y		349	indeterminate	4.7–6.5	Y	caries, hypoplasia
287	indeterminate	20–50	Y		350	indeterminate	8.2–10.2	Y	caries
288	indeterminate	~1.3	Y		351	indeterminate	0–1.5	N	
289	indeterminate	~2.8	Y		352	indeterminate	0–0.5	N	
290	indeterminate	0–5	N		353	indeterminate	0–1.5	Y	
291	indeterminate	~5	N		354	indeterminate	0–1.5	Y	
292	indeterminate	0	Y		355	indeterminate	~4	Y	caries, hypoplasia, hair
293	indeterminate	~1.6	Y		356	indeterminate	5.1–6.0	Y	caries
294	indeterminate	2.9–3.7	Y	hypoplasia	357	female?	~12.2	Y	braided hair
295	indeterminate	~1.4	Y		358	female?	16–18	Y	caries, hypoplasia, braided hair
296	indeterminate	0–1	Y		359	indeterminate	0–1.5	N	
297	indeterminate	2.9–3.9	Y	caries	360	indeterminate	0	N	
298	indeterminate	~1.7	Y		361	indeterminate	3.5–4.8	Y	caries, hypoplasia, hair
299	indeterminate	~1.1	Y		362	indeterminate	0–1	Y	
300	indeterminate	6–6.3	Y		363	male	28–35	Y	caries
301	indeterminate	~0.5	Y		364	indeterminate	5–6	Y	caries, hypoplasia
302	indeterminate	0	Y		365	indeterminate	3–6	Y	
303	indeterminate	2.9–3.6	Y	caries, hypoplasia	366	indeterminate	~3	Y	
304	indeterminate	~0.2	Y		367	indeterminate	1.5–2.0	Y	
306	indeterminate	~3.6	Y	caries					
307	indeterminate	0.5–0.8	Y						
308	indeterminate	0	Y						
309	indeterminate	2–5	N						

Appendix 3.—Continued.

Burial no.	Sex	Age at death (yrs)	Bones present	Comments	Burial no.	Sex	Age at death (yrs)	Bones present	Comments
369	indeterminate	0–0.5	N		440	indeterminate	0.5–1	Y	
370	indeterminate	~6	Y	hypoplasia	441	indeterminate	0–0.5	Y	
371	indeterminate	0–1	Y		442	indeterminate	~0.8	Y	
372	indeterminate	2.7–3.7	Y	caries	443	indeterminate	0	N	
373	indeterminate	0	N		444	indeterminate	0	N	
374	indeterminate	1.5–2.0	Y	hair, desiccated tissue	445	indeterminate	1–5	N	
375	indeterminate	0.8–1.5	Y		446	indeterminate	0–1.5	N	
376	female?	~3	Y	hair and hairpin	447	female?	30–40	Y	caries, 163.3 cm (5 ft 4.3 in)
377	indeterminate	0–1	Y		448	female?	25–35	Y	caries
378	indeterminate	0–1	Y		449	female	27–33	Y	caries, hypoplasia, healed cribra orbitalia, 156.5 cm (5 ft 1.6 in)
379	male	55–75	Y	caries, hypoplasia	450	indeterminate	0.1–0.2	Y	
380	male	35–45	Y	caries, hypoplasia, 163.3 cm (5 ft 4.3 in)	451	indeterminate	0–0.5	Y	
381	male	25–30	Y	caries	453	indeterminate	0–1.5	N	
382	male	30–45	Y	Perthe's disease?	454	indeterminate	0–1.5	N	
383	indeterminate	14.5–14.8	Y	caries, peg-shaped lateral incisors	455	indeterminate	0–0.5	Y	
384	indeterminate	1.5–2.1	Y		456	indeterminate	0–1.5	N	
385	indeterminate	0–1	Y		457	indeterminate	4–7	Y	
386	indeterminate	1–2	Y		458	indeterminate	~1.3	Y	
387	indeterminate	0–0.5	N		459	indeterminate	0.2–0.3	Y	
389	indeterminate	4.7–7.1	Y		460	male?	4–5.1	Y	caries, hypoplasia, pocket knife
390	indeterminate	~0.8	Y		461	indeterminate	~0.2	Y	
391	indeterminate	~3.7	Y	caries	462	indeterminate	2–6	N	
392	male?	20–27	Y	caries	463	male	35–50	Y	caries, 170.8 cm (5 ft 7.2 in)
393	indeterminate	0	Y		464	indeterminate	0–1.5	N	
394	female	17–20	Y	hypoplasia	465	indeterminate	~3.6	Y	caries
395	indeterminate	~1	Y		467	indeterminate	0.8–1.5	N	
396	indeterminate	~0.5	Y		468	indeterminate	~3	Y	
397	indeterminate	0–1	Y		469	indeterminate	1.5–4	N	
398	indeterminate	0–1.5	N		470	indeterminate	~1.3	Y	caries
399	indeterminate	0–1	Y		471	indeterminate	~4.4	Y	caries, hypoplasia
400	indeterminate	~0.5	Y		472	indeterminate	2–6	N	
402	female?	25–40	Y	caries, hypoplasia, 162 cm (5 ft 3.7 in)	473	indeterminate	0.7–1.2	Y	
405	indeterminate	0.8–1.5	Y		474	indeterminate	0–1.5	N	
406	indeterminate	0	N		475	female?	35–50	Y	
407	indeterminate	0–1.5	N		476	indeterminate	0.5–1.3	Y	
408	female	5–7	Y	caries, hypoplasia, braided hair	477	indeterminate	2–6	N	
409a	indeterminate	0–1	Y		478	indeterminate	0–1.5	N	
409b	male?	30–40	Y	caries, hypoplasia, pipewear	479	indeterminate	0–0.5	N	
410	indeterminate	0–0.5	Y		480	indeterminate	0.8–1.5	Y	
411	indeterminate	20–80	N		481	indeterminate	2–6	N	
412	indeterminate	~1.4	Y	bone formation in occipital	482	indeterminate	0–1.5	N	
414	female?	20–35	Y	hairpins	483	indeterminate	0.1–0.3	Y	healing fractured clavicle
416	female?	25–35	Y	caries, hairpins	484	indeterminate	~1.3	Y	
417	indeterminate	30–40	Y	caries	486	indeterminate	1.5–2	Y	
418	indeterminate	10–16	Y		487	indeterminate	fetus	Y	
419	indeterminate	~8.6	Y	caries, hypoplasia, healed cribra orbitalia	488	indeterminate	2–6	N	
420	indeterminate	0–1	Y		489	indeterminate	~1.5	Y	
421	indeterminate	~1.6	Y		491	indeterminate	0–1.5	N	
423	indeterminate	16.5–17.5	Y	caries, hair	492	indeterminate	0	N	
424	indeterminate	35–50	Y	caries	493	indeterminate	0–1.5	N	
425	indeterminate	2–5	Y		494	indeterminate	0–1.5	N	
426	indeterminate	0.8–1.5	Y		495	indeterminate	~2	Y	
427	indeterminate	~0.2	Y		496	indeterminate	~0.8	Y	
428	female?	30–40	Y		497	indeterminate	0–1.5	N	
429	indeterminate	0–0.5	N		498	male	27–40	Y	caries, 176.2 cm (5 ft 9.4 in)
430	indeterminate	0–0.5	N		499	indeterminate	0–1.5	N	
431	indeterminate	0–1	N		501	indeterminate	1.5–1.8	Y	
433	indeterminate	fetus	Y		502	indeterminate	0.8–1.3	Y	
437	male?	35–50	Y	caries, hair, healed humerus fracture, periosteal bone on tibiae, 168 cm (5 ft 6.1 in)	503	indeterminate	5–6	N	
					504	indeterminate	1–1.5	Y	
438	indeterminate	1.5–4	N		505	indeterminate	~0.8	Y	
439	indeterminate	2–4	Y		506	indeterminate	1.2–1.8	Y	

Appendix 3.—Continued.

Burial no.	Sex	Age at death (yrs)	Bones present	Comments	Burial no.	Sex	Age at death (yrs)	Bones present	Comments
507	male?	25–30	Y	caries, 174.5 cm (5 ft 8.7 in)	568	indeterminate	~2.2	Y	
508	indeterminate	0–1.5	N		569	indeterminate	2–3	Y	
509	indeterminate	0	Y		570	indeterminate	0.8–1.5	Y	
510	indeterminate	~3	Y	caries	571	indeterminate	10–14	N	
511	indeterminate	~2.9	Y		572	indeterminate	~0.2	Y	
512	indeterminate	1.5–2	Y		573	indeterminate	1.5–2	Y	
513	male	50–85	Y	caries, desiccated tissue and hair, eye patch	574	female?	25–35	Y	caries
514	indeterminate	0.5–1	Y		575	indeterminate	20–65	Y	
515	indeterminate	0–1	Y		576	indeterminate	35–55	Y	caries
516	indeterminate	~0.5	Y		577	indeterminate	20–65	Y	
517	indeterminate	~5	Y	caries	578	male	21–26	Y	caries, 167.3 (5 ft 5.9 in)
518	female?	3.6–4.7	Y	caries, hair, barrette	579	male?	25–35	Y	caries
519	indeterminate	4.5–5	Y	caries	580	indeterminate	15–16	Y	caries, hypoplasia
522	indeterminate	1–4	N		583	male	30–45	Y	caries, hypoplasia, pipewear, tailor's notch, healed cribra orbitalia
523	indeterminate	3–3.5	Y	caries	584	female	25–35	Y	caries, hair
524	indeterminate	~0.8	Y		585	female	30–45	Y	caries
525	indeterminate	2–6	N		586	male?	25–35	Y	caries, periosteal bone deposits on tibiae and femora, 177 cm (5 ft 9.7 in)
526	indeterminate	~1.6	Y		587	male	40–55	Y	hypoplasia, 165 cm (5 ft 4.9 in)
527	indeterminate	0–1	Y		588	male?	35–45	Y	caries, hypoplasia
528	indeterminate	4–5	N		589	male	30–40	Y	caries, healed lesion of femur
529a	female	18–25	Y	caries	590	female	17–22	Y	caries, hypoplasia, healed cribra orbitalia, braided hair, hairpin, earring and other jewelry, gold-foil fillings, 163.3 cm (5 ft 4.3 in)
529b	indeterminate	~1.3	Y		591	male	35–50	Y	caries, hypoplasia
530	indeterminate	~1	Y	hypoplasia	592	female	20–25	Y	hypoplasia
532	indeterminate	0.8–1.5	Y		593	female	25–35	Y	caries, hypoplasia, peg-shaped molars, 163.5 cm (5 ft 4.3 in)
533	indeterminate	1.5–4	N		594	male	25–35	Y	caries, 170.1 (5 ft 7 in)
534	indeterminate	0–0.2	Y		595	male	45–60	Y	caries, 176.8 (5 ft 9.6 in)
535	indeterminate	1.5–4	N		596	female	30–55	Y	
536	indeterminate	2.9–3.9	Y	hypoplasia, active cribra orbitalia	597	female?	40–55	Y	
537	indeterminate	0–1.5	N		598	indeterminate	fetus–0	Y	
538	indeterminate	~1.6	Y		599	indeterminate	7–8	Y	caries
539	female	30–40	Y	caries, hypoplasia	600	indeterminate	6–10	N	
540	female?	32–45	Y	caries	601	indeterminate	0.5–1.5	Y	
541	indeterminate	0	Y		602	indeterminate	~0.5	Y	
542	indeterminate	~5.8	Y		603	indeterminate	0–0.5	N	
543	indeterminate	~1.6	Y		604	indeterminate	0.8–1	Y	
544	indeterminate	1.5–4	N		606	indeterminate	6–10	N	
545	male	25–32	Y	pipewear, 164 cm (5 ft 4.6 in)	607	indeterminate	2.5–3	Y	hypoplasia
546	female	18–21	Y	caries, healed cribra orbitalia, 163.8 cm (5 ft 4.4 in)	608	indeterminate	~8	Y	caries
547	indeterminate	~0.4	Y		609	indeterminate	~2	Y	caries
548	indeterminate	6–10	N		610	indeterminate	0.8–1.5	Y	
549	indeterminate	3–5	N		611	indeterminate	1.5–2	Y	hypoplasia
550	indeterminate	3–5	N		612	indeterminate	~6.4	Y	hypoplasia
551	indeterminate	2–6	N		613	female	6–7	Y	caries, hair, earring,
552	indeterminate	5–7	N		616	indeterminate	14.5–15	Y	caries, hypoplasia
553	indeterminate	~2	Y		617	female	8–9	Y	caries, periosteal bone on rib, earrings
554	indeterminate	2–5	N		618	indeterminate	0–1	Y	
555	indeterminate	3.5–4.2	Y	caries, hypoplasia, hair, healed cribra orbitalia	620	male	28–42	Y	caries, hypoplasia, 169.7 cm (5 ft 6.8 in)
556	indeterminate	0.8–1.5	Y		621	indeterminate	5–10	Y	
557	indeterminate	0.8–1.5	Y		622	male	25–34	Y	caries, hypoplasia, 169.9 cm (5 ft 6.8 in)
558	indeterminate	~2	Y	hypoplasia	623	indeterminate	13–14	Y	hypoplasia, periosteal bone on femora
559	indeterminate	7–8	Y	caries, hypoplasia	624	male	25–35	Y	caries, healed trauma to left ankle area, 162.7 cm (5 ft 4.1 in)
560	indeterminate	~1	Y		625	indeterminate	0	Y	
561	female	60–80	Y	hypoplasia	626	indeterminate	2–4	N	
562	indeterminate	0.8–1.5	Y		627	indeterminate	0	Y	
563	female	50–65	Y		628	indeterminate	0–3	Y	
564	indeterminate	~1	Y						
565	male	35–45	Y	caries, 163.5 cm (5 ft 4.4 in)					
566	indeterminate	10.7–12.3	Y	caries, hair, healed cribra orbitalia					
567	indeterminate	20–60	N						

Appendix 3.—Continued.

Burial no.	Sex	Age at death (yrs)	Bones present	Comments	Burial no.	Sex	Age at death (yrs)	Bones present	Comments
629	female	40–60	Y	hair, caries, hypoplasia, ossified soft tissue in neck area, 164.2 cm (~5 ft 4 in)	691	indeterminate	0–1.5	N	
630	indeterminate	2.5–3	Y		692	female?	25–35	Y	caries, hair
631	indeterminate	fetus–0	Y		693	female?	55–70	Y	cortex of right femur thickened
632	indeterminate	~2	Y	caries	694	indeterminate	15–18	Y	hair
633	indeterminate	2.2–2.8	Y	caries	695	female?	50–65	Y	caries, 160.3 cm (5 ft 3.1 in)
634	indeterminate	0	N		696	indeterminate	0–0.5	N	
635	indeterminate	7.4–8	Y	caries, active and healing cribra orbitalia	697	female	23–27	Y	caries, hair, healed trauma to right radius 161.5 cm (5 ft 3.6 in)
636	indeterminate	0	N		698	male	65–80	Y	
637	indeterminate	~0.5	Y		699	indeterminate	2.5–3	Y	caries
639	female	17–24	Y	ovoid defect on right femur, 165.25 cm (5 ft 5 in)	700	female	27–32	Y	caries, braided bun of hair
640	indeterminate	25–55	Y		701	indeterminate	~3.5	Y	caries, hypoplasia, healed cribra orbitalia
641	female	30–45	Y	caries	702	indeterminate	~9	Y	caries, hair
642	indeterminate	15–45	Y		703	male	35–40	Y	caries, periosteal bone on right fibula and tibia, 169.5 cm (5 ft 6.7 in)
643	indeterminate	0–1.5	N		704	male?	22–25	Y	hypoplasia
644	indeterminate	0–1	Y		705	male	45–60	Y	caries, hypoplasia, 178 cm (5 ft 10.1 in)
645	indeterminate	0.5–1	Y		706	male	35–45	Y	caries, bone deposits in maxillary sinuses, periosteal bone on ribs
646	indeterminate	0.5–0.8	Y		707	indeterminate	4.7–6.8	Y	caries, hypoplasia
647	indeterminate	0	Y		709	indeterminate	2–5	N	
648	indeterminate	0–0.5	Y		710	male?	15.1–16.3	Y	caries, hair
649	indeterminate	0	N		711	male?	30–45	Y	
650	indeterminate	~1	Y		712	male?	30–45	Y	caries, hair
651	indeterminate	3–12	Y		713	indeterminate	0.5–1	Y	
652	indeterminate	fetus	N		714	indeterminate	12–16	N	
653	indeterminate	~2.3	Y	caries, hair	715	male?	25–40	Y	hypoplasia
654	indeterminate	0.8–1	Y	hypoplasia	716	female?	17–24	Y	caries
655	male?	25–65	Y		717	female	28–38	Y	caries
656	indeterminate	1.5–2.0	Y	caries, hair	718	female	17–23	Y	hair, hairpin
657	indeterminate	0.3–0.4	Y		719	female?	40–75	Y	caries
658	indeterminate	~2	Y	active cribra orbitalia	720	female?	50–80	Y	hair, hyperostosis frontalis interna
659	indeterminate	0–1.5	N		721	male?	50–80	Y	caries
660	indeterminate	0–3	Y		722	female	25–30	Y	caries, hair, earrings
661	indeterminate	fetus	N		723	indeterminate	20–65	N	
663	indeterminate	~6	Y	caries	724	male?	45–60	Y	caries
664	indeterminate	0.5–1	Y		725	male	23–27	Y	caries, healed fracture of right humerus, 168.5 cm (5 ft 6.4 in)
665	indeterminate	1–1.5	N		726	indeterminate	13–14	Y	caries, hair
666	indeterminate	1–1.5	N		727	indeterminate	0–0.5	Y	
667	indeterminate	0	Y		728	female?	20–30	Y	
668	indeterminate	1–1.5	N		729	female	30–40	Y	caries
669	indeterminate	0.5	Y		730	male	50+	Y	caries
670	indeterminate	2–6	N		731	female	35–45	Y	tortoise-shell comb, caries, hypoplasia, tin dental filling
671	indeterminate	20–30	Y	caries	732	male	22–27	Y	caries, hypoplasia, healed fracture of left femur
672	indeterminate	0–1	Y		733	male?	40–55	Y	caries, periosteal bone on right tibia, infection of right mastoid
675	indeterminate	0–1.5	N		734	indeterminate	20–60	N	
676	indeterminate	0	Y		735	indeterminate	20–60	N	
677	indeterminate	2–5	N		736	male	35–45	Y	cranial lesion, pipewear?
678	indeterminate	~2	Y		738	indeterminate	1–1.3	Y	hair
679	indeterminate	0.8–1.5	Y		739	indeterminate	5.5–7	Y	hypoplasia, hair
680	indeterminate	0	Y		740	indeterminate	3–6	Y	
681	indeterminate	0–0.5	N		741	male?	25–35	Y	caries
682	indeterminate	1–1.5	N		742	male?	50–60	Y	caries
683	indeterminate	1–2	Y		743	female?	35–50	Y	
684	indeterminate	0	Y		744	male	45–50	Y	caries, hypoplasia
685	indeterminate	0	N						
686	indeterminate	4–5.5	Y	caries					
687	indeterminate	10–12	Y						
688	female?	23–35	Y	caries, hatpins					
689	indeterminate	~1.6	Y						
690	female?	12–13	Y	caries, hair, hairpin					

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