

Archaeological and Forensic Research in Support of the 1921 Tulsa Race Massacre Graves Investigation:

The 2020-2021 Field Seasons at Oaklawn Cemetery

compiled by
Kary L. Stackelbeck
Phoebe R. Stubblefield

Volume I

Report submitted to the City of Tulsa
by the Oklahoma Archeological Survey

in collaboration with the C.A. Pound Human Identification Laboratory, University of Florida Department of Anthropology

The University of Oklahoma · Oklahoma Archeological Survey

University of Florida · C.A. Pound Human Identification Laboratory

ARCHAEOLOGICAL AND FORENSIC RESEARCH IN SUPPORT OF THE 1921 TULSA RACE MASSACRE GRAVES INVESTIGATION:

The 2020-2021 Field Seasons at Oakland Cemetery

Volume I

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A MOMENT OF CAUTION

Dear Reader,

In the pages to follow, you will encounter images of the artifacts and lives of past people, lives of past people who were interred in Section 20, the Colored Potter's Field of Oaklawn Cemetery in the early 1900s. These images are of skeletal remains, personal effects, and artifacts exposed while searching for individuals buried in connection with the 1921 Tulsa Race Massacre. If viewing such evidence of past lives will be emotionally or spiritually contaminating, or violates a cultural rule, please do not proceed.

In a forensic context, and often an archaeological one, it is typical for images of the human remains to be included in the analytical report of those remains, so images are included here. We as a research team have gone to great lengths to be respectful to these individuals by shielding them from view in the field and the lab prior to this report. Many of the images here are distant views, close-ups, or views of partial anatomy in order to limit the comprehensive exposure of these decedent contributors. As is required for a report of this kind, these images are released to the relevant family—the City of Tulsa. Please view these images with the respect you would want shown to yourself as a decedent contributor to this investigation. These individuals may acquire identities and histories as we go forward, and respect shown to these decedents will hopefully become respect shown to their families.

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CHAPTER 1
INTRODUCTION

Kary L. Stackelbeck, Ph.D., Phoebe R. Stubblefield, Ph.D., and Scott Ellsworth, Ph.D.

The information presented in this report builds on an incredible amount of previous research, which was captured in the report titled *Tulsa Race Riot: A Report by the Oklahoma Commission to Study the Tulsa Race Riot of 1921*, which was presented in 2001. The research conducted by consultants to that Commission culminated in the identification of three locations where victims of the Massacre were believed to be interred: Oaklawn Cemetery, Newblock Park, and Rolling Oaks Memorial Gardens (formerly Booker T. Washington Cemetery). Researchers compiled substantial information from archival documents, other historic records, interviews, oral histories, and geophysical surveys conducted at each location (Ellsworth et al. 2001). An additional location has come to light in the years since this initial research—namely an area near Newblock Park known as The Canes.

In 2018, the City of Tulsa reopened investigations to locate mass graves of victims of the 1921 Tulsa Race Massacre. The Physical Investigation Committee (PIC) was formed, in part, to assist with the process of locating such graves and to facilitate forensic analyses. This reopened investigation focused first on four areas of interest mentioned above. The Oklahoma Archeological Survey completed geophysical survey at the first three locations in 2019 (Hammerstedt and Regnier 2019), with additional survey completed in Oaklawn in 2020 and 2021 (Appendix B, this volume) and Rolling Oaks in 2021 (Hammerstedt and Regnier 2021). The intention of this geophysical survey was to identify anomalies that might represent potential targets for ground-truthing through test excavations to determine the extent to which they do (or do not) correspond to mass graves.

In 2020, the Physical Investigation Committee developed two proposals to conduct test excavations in three areas within Oaklawn Cemetery where geophysical anomalies and other lines of evidence suggested the possible presence of graves of Massacre victims. These areas are identified as the Sexton Area, Clyde Eddy Area, and Original 18 Area (Figure 1). These proposals were presented to the City and Public Oversight Committee and approved during public meetings on February 3, 2020 and September 14, 2020, respectively. The ensuing test excavations were completed in July and October of 2020. The fieldwork was completed by an excavation team led by the Physical Investigation Committee and with observation by and participation of representatives from the Public Oversight Committee and the City of Tulsa.

As a result of the testing, no indication of a mass grave or human remains were detected in the Sexton Area or the Clyde Eddy Area. However, several unmarked graves were detected in the Original 18 Area near the southwestern corner of the cemetery. Initial data suggested these individuals were interred in a collective—or mass—grave based in part on the lack of evidence for individual grave shafts.

Additional investigations were needed to test this initial assessment and collect detailed data on the burials themselves to assess, to the extent possible, the demographics (age at death, sex, and likely ethnicity) of this burial population, cause of death, evidence of trauma, and evidence of features that would associate the unmarked graves as victims of the Tulsa Race Massacre. That plan was approved by the Public Oversight Committee on March 23, 2021. This stage of fieldwork began on June 1, 2021 and ended on June 25, 2021. Remains exhumed during this phase of the investigation received forensic analysis in an on-site laboratory under the direction of Dr. Phoebe R. Stubblefield and were reinterred on July 30, 2021.

This report presents the results of the combined fieldwork that has taken place at Oaklawn since July 2020 in the three areas of interest (Figure 1.1). The document is organized to present historic background information on the investigation (Chapter 2), the expected archaeological correlates of individual and mass graves (Chapter 3), and detailed results and specialized analyses of the data collected during the 2020 and 2021 excavations in Oaklawn Cemetery. These analyses interpret:1) the landscape history of Oaklawn Cemetery (Chapter 4); 2) results of the archaeological excavations in the Original 18 area (Chapter 5); 3) non-mortuary artifact types and spatial distribution (Chapter 6); and 4) forensic analysis of the exhumed individuals (Chapter 7). The final chapter presents a summary of the overall findings of this stage of the investigation and recommendations for the next phases of fieldwork—both at Oaklawn and two of the other locations of interest.

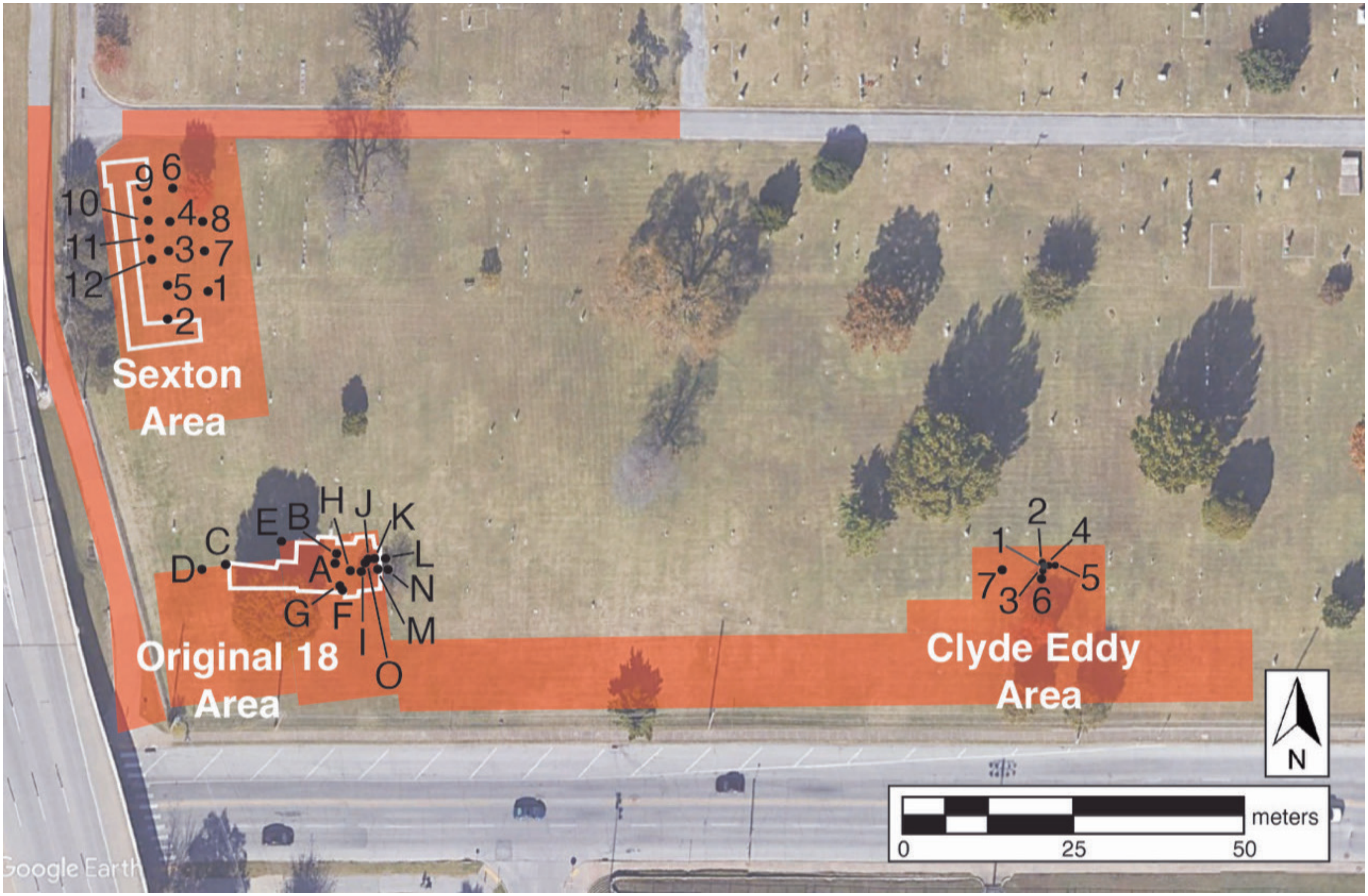


Figure 1.1. *Aerial image displaying three areas in Oaklawn Cemetery discussed in the text that were the subject of investigation between 2019 and 2021. Displayed in this image are the areas where geophysical survey has been completed, core and auger locations, and block excavations.*

CHAPTER 2

MASSACRE DEATHS, HISTORICAL EVIDENCE, AND THE SEARCH FOR THE UNMARKED GRAVES

by Scott Ellsworth, Ph.D

Massacre Fatalities

The number of people killed during the 1921 Tulsa race massacre is unknown.

Newspaper reports and other estimates that appeared immediately following the massacre varied widely. On June 1, 1921, the *Tulsa Tribune* reported that 175 people had been killed during the fighting, while on June 2nd, the *Tulsa World* ran a headline that stated DEAD ESTIMATED AT 100. That same day, *New York Times* declared that 85 WHITES AND NEGROES DIE IN TULSA MASSACRES. Within days, however, and likely due to political pressure by the local white authorities to minimize the extent of the magnitude of the massacre, the supposed number of fatalities fell sharply. While there was never an "official" death count issued, estimates in the white press soon coalesced around a figure of supposed massacre casualties that would linger for years: twenty-two African Americans, and nine whites.

A number of contemporary observers, however, painted a much different picture. Walter White, later the General Secretary of the National Association for the Advancement of Colored People, was in 1921 an investigator serving on the staff of the NAACP at its headquarters in New York City. White had also made his reputation as a journalist through his undercover investigations of the lynching and murders of African Americans in the South. Immediately following news of the outbreak of violence in Tulsa, he traveled to Tulsa to report on the violence. In an article that he wrote about the massacre for *The Nation* magazine in its June 29, 1921 edition, White reported:

> It is highly doubtful if the exact number of casualties will ever be known. The figures originally given in the press estimate the number at 100. The number buried by local undertakers and given out by city officials is ten white and twenty-one colored. For obvious reasons these officials wish to keep the number published as low as possible, but the figures obtained in Tulsa are far higher. Fifty whites and between 150 and 200 Negroes is much nearer the actual number of deaths. Ten whites were killed during the first hour of fighting on Tuesday night. Six white men drove into the colored section in a car on Wednesday morning and never came out. Thirteen whites were killed between 5:30 a.m. and 6:30 a.m. Wednesday. O. T. Johnson, commandant of the Tulsa Citadel of the Salvation Army, stated that on Wednesday and Thursday the Salvation Army fed thirty-seven Negroes employed as grave diggers and twenty on Friday and Saturday. During the first two days these men dug 120 graves in each of

> which a dead Negro was buried. No coffins were used. The bodies were dumped into the holes and covered over with dirt.

While Walter White did not reveal in his article as to *where* these one hundred and twenty graves were located, subsequent research in the Salvation Army's national historical offices turned up independent evidence that lent credence to what O. T. Johnson told White. In *Sweeping Through the Land,* his 1989 history of the Salvation Army in the southern United States, author Allen Satterlee touched briefly upon the massacre. "A candidate for leadership," Satterlee wrote, "Lt. Colonel Ruth Gibbs recalls feeding the black prisoners in leg irons who had been assigned to the gravedigging detail."

It should be added as well that the figures on the number of graves and grave diggers in White's article also made sense. According to Dr. Clyde C. Snow, the forensic anthropologist who helped to direct the first effort to locate the graves of the massacre dead during the era of the Tulsa Race Riot Commission in the late 1990s—early 2000s, it takes "one man eight hours to dig one grave." Using that measure as a yardstick, 37 + 37 + 20 + 20 gravediggers = 114 graves, which is nearly in line with the 120 graves that White cites in his article.

This past summer—in late June 2021—another piece of evidence came to light that references both a higher death estimate and the involvement of the Salvation Army in the burial of massacre victims. Thomas James Sharp was a clerical employee for a couple of petroleum companies who lived off and on in Tulsa beginning in 1918. Though he was apparently not in Tulsa during the massacre itself, but was likely in Enid, on June 28, 1921 Sharp wrote a letter to family members in upstate New York in which he describes his understanding of the massacre. In the letter, Sharp stated that the number of African Americans "killed in the riot were over 200 although the papers had it down to thirty odd. The Salvation Army alone buried 68 [Blacks] and the morgues were just crowded with them."

A potentially much more authoritative source on the number of massacre deaths was the American Red Cross, which dispatched Maurice T. Willows to Tulsa to oversee the organization's relief efforts in Greenwood—which was the first time in its history to respond to a so-called "man-made disaster." Willows stayed in Tulsa for months, and oversaw a multifaceted relief program, which included establishing a new hospital in Greenwood, organizing child care and employment activities for African American women, and donating thousands of dollars worth of tents and building materials to Greenwood's now homeless citizens.

Willows was also a meticulous record-keeper, and in his final report that he submitted to the national headquarters staff of the Red Cross in Washington, D.C. are page after page of tables, charts, and detailed listings of expenditures, supplies purchased, and man-hours spent on relief activities. Willows also provided a detailed accounting of the number of individuals who received some form of medical in the aftermath of the massacre.

But most pointedly, Willows did *not* provide for a similar accounting of the number of massacre casualties. Undoubtedly feeling the weight of political pressure to minimize the number of deaths, Willows did, however, manage to include some telling hints. Buried among his various statistics on relief, three items in particular stood out:

Total No. families with no father (missing or dead)	222
Total No. families with no mother (missing or dead) . . .	87
Telegrams sent or received (relative to riot victims) . . .	1350

But in another section of his report, Willows again addressed the question of massacre fatalities. "The number of dead is a matter of conjecture," he wrote. "Some knowing ones estimate the number of killed as high as 300, other estimates being as low as 55. The bodies are hurriedly rushed to burial, and the records of many burials are not to be found. For obvious reasons, this report cannot deal with this subject."

It's worth noting here that Mary E. Jones Parrish, author of the single most important contemporary chronicle of the massacre, also did not provide an estimate of massacre deaths in her classic account, *Events of the Tulsa Disaster*. Parrish did, however, quote an African American survivor who worked with the Red Cross: "I am now employed as secretary at Maurice Willows Hospital and find on file a list of names, very incomplete, as follows: Colored wounded, 63; Dead, 15. This report cannot be relied upon as correct."

But there are other sources relative to the number of massacre deaths as well. In his chapter, "Confirmed Deaths in the Tulsa Race Riot of 1921: A Preliminary Report," in John Hope Franklin and Scott Ellsworth, *The Tulsa Race Massacre: A Scientific, Historical, and Legal Analysis* (2000), Clyde Snow lists 39 individuals killed in the massacre, 26 African Americans and 13 whites. He adds, however, that these are merely those individuals whose deaths were *confirmed* by the existence of death certificates, cemetery headstones, and other written documentation. "It should be emphasized that this report is, as indicated in the title, preliminary," Snow wrote. "It is probable that at least some, and, perhaps many, deaths went unrecorded."

Other sources of the names and numbers of massacre fatalities include funeral home records, eyewitness accounts, and individual family histories, both written and oral. W. French Anderson, a former Tulsa now living in California, corresponded in May 2021 with Scott Ellsworth about his father, who at the time of the massacre was a senior at Central High School. According to Anderson, his father went to a train station near downtown likely on June 1st or June 2nd, 1921. Anderson wrote that years later, "My father also took me to the train station (in North Tulsa as well) where the dead bodies were stacked up, placed in box cars, and taken by train south of Tulsa for secret burial. While in the train station, he counted the bodies that were stacked up at the time: there were just over 450. He asked how many trainloads went south and was told the number. My dad estimated that the total dead had to be well over 3000."

The bottom line, however, is that the number of massacre deaths remains, to this day, unknown. Moreover, while there is a generalized belief that more African Americans died in the massacre than whites, what that ratio was is unclear. Nor is that belief universal. Survivor W. D. Williams certainly didn't think so. The son of John and Loula Williams, who owned the Dreamland Theater, the East End Garage, and the three-story Williams Building at the northwest corner of Greenwood and Archer, he was a junior at Booker T. Washington High

School in the spring of 1921. On the long night of May 31st/June 1st, Williams helped reload his father's 30/30 rifle and repeating shotgun as they fought off armed whites who were attempting to invade Greenwood. When asked nearly sixty years later whether what had happened in Tulsa in 1921 should be termed a "massacre," W. D. Williams had a succinct answer. "Hell, no," he replied. "We got as many of them as they got of us."

The Burial of Massacre Victims and Perpetrators

Individuals who perished during the Tulsa race massacre had their remains handled and buried in different ways. A relatively small number were given full funerals, with family members and religious leaders present, and one can visit their headstones to this very day. Others were laid to rest plainly, some likely without a coffin, but with an air of respect. But many if not most, we can assume with a fair degree of confidence, were dropped into freshly dug single graves or a mule or machine-dug trench, while their family members were being held under armed guard at Municipal Auditorium, McNulty Baseball Park, or the Fairgrounds. What became of one's remains, like virtually everything else in Tulsa in 1921, depended almost entirely on race.

The remains of most of the whites who were killed during the massacre were ultimately buried in individual plots in cemeteries both in Tulsa and out of town. Of the thirteen white fatalities on Clyde Snow's list of confirmed massacre dead, three were buried at Rose Hill Cemetery in Tulsa, one in Watonga, Oklahoma, two in New York, Kansas, and Colorado, and one each in Texas, Indiana, and West Virginia. There is some evidence, however, that suggests that the remains of some white fatalities may have been buried in common graves, including at both the Clyde Eddy site in Oaklawn Cemetery, and the suspected mass grave at Newblock Park/Canes.

The remains of at least five identified African American massacre victims received what might be termed as regular cemetery burials. The remains of Dr. A. C. Jackson, the noted African American surgeon who was murdered by members of the white mob in the closing hours of the massacre, were buried in Guthrie, Oklahoma. John Wheeler, age sixty-three, who worked as a bank porter, was buried Ft. Smith Arkansas, while Commodore Knox, a twenty-one-year-old laborer, had his remains interred in Mississippi. An ice man named H. Johnson was buried in Muskogee, while Howard Barrens, who was murdered at age nineteen, was buried in Gatesville, Texas. And there is every reason to believe that the handful of African American massacre victims whose remains were likely buried in unmarked graves at Booker T. Washington Cemetery were interred with reverence and respect.

But for the majority of Black victims, whose remains were buried under the direction of the white authorities during the days immediately following the massacre, callousness and disrespect ruled the day. Not only were there no known efforts to try and identify African American victims, but there is every reason to believe that even when a Black massacre victim was identified that no efforts were made to notify family members of the location of the grave of their loved one.

Simply stated, for the white civilian and military authorities who were charged with the responsibility of burying the remains of African American massacre victims in early June 1921, Black lives did not matter at all. The corpses of African American massacre victims, which may well have numbered in the scores if not hundreds, weren't regarded as someone's father, mother, sister, brother, son or daughter. They weren't viewed by those in charge of disposing of their remains as someone's neighbor or fellow member of the church choir, or as young man who had served his country in the battlefields of Flanders and France. Blinded by racism and indifferent to both the humanity and the needs of the African American community, the white authorities instead viewed the remains of the Black dead as little more than a public health menace. And the sooner that they were buried, especially given the hot June weather, the better.

But there was another element at play as well. For Tulsa's white city fathers had realized, even before the smoke over Greenwood had finally dissipated, that the massacre had been a public relations disaster for their continuing efforts to increase the size of the city. And even during that first week in June 1921, efforts were already under way to sweep the massacre under the rug. As a result, the white authorities weren't just burying the dead of the massacre. They had already begun to bury the massacre itself.

The First Search: The Tulsa Race Riot Commission Era: 1997 – 2001

Established through the longstanding efforts of Oklahoma State Representative Don Ross and Oklahoma Senator Maxine Horner to draw long-needed attention to the massacre and to win financial restitution for survivors and their families, the Oklahoma Commission to Study the Tulsa Race Riot—popularly known as the Tulsa Race Riot Commission—was established in 1997. Drs. John Hope Franklin and Scott Ellsworth were appointed as historical consultants to the Commission, and under their guidance, a 284-page report, *The Tulsa Race Riot: A Scientific, Historical, and Legal Analysis,* was submitted to the Commission in November 2000. The commission submitted its findings and recommendations to the governor and state legislature in 2001.

The current effort to locate the unmarked graves of massacre victims builds upon work done by Scott Ellsworth and Dick Warner, of the Tulsa Historical Society, between February 1998 and June 2000. After being encouraged by massacre survivors to undertake such a search, and receiving the blessing of the Commission, an intensive investigation was launched. More than three hundred individuals were either contacted or interviewed, including massacre survivors and eyewitnesses, descendants of survivors, cemetery workers, undertakers, funerary monument builders, city officials, police officers, academics, amateur historians, water and sewer line managers, railroad employees, construction workers, file clerks, secretaries, and everyday citizens. Repeated visits and interviews were made with individuals who possessed special insights or knowledge relating to the disposition of the bodies of massacre victims, including Ruth Avery, Ed Wheeler, Bruce Hartnitt, Eddie Faye Gates, Robert Littlejohn, Robert Norris, John Irby, Gladys Cummins, and Larry Hutchings, as well as a number of survivors and eyewitnesses, among them Jeanne Goodwin, Otis Clark, and Richard Gary.

With guidance from historian Dr. John Hope Franklin, forensic anthropologist Dr. Clyde Snow, and Oklahoma State Archaeologist Dr. Bob Brooks, this research effort was assisted by a number of local and national institutions, including the Greenwood Cultural Center, the North Tulsa Historical Society, the Oklahoma Historical Society, the American Red Cross, the Salvation

Army, the Office of the State Medical Examiner, the American Legion, and numerous city, county, state, and federal government offices and agencies.

Considerable archival research was conducted as well, including work done with the records of the National Association for the Advancement of Colored People at the Library of Congress in Washington, D.C. Local and in-state records repositories, including the Department of Special Collections at the University of Tulsa, the Rudisill Regional Library, and the Oklahoma State Archives, were also searched for relevant source material, while Paul Lee, an Oklahoma City based researcher, was contracted to make a review of all of the coverage of the 1921 race massacre that appeared in African American newspapers nationwide, utilizing the extensive historic clipping files generated by generations of scholars and librarians at Howard University, Tuskegee, and the Hampton Institute.

During the course of the investigation, three additional scholars joined the research team. Dr. Lesley Rankin-Hill, an anthropologist and one of the leading experts on the African Burial Ground in New York City, as well as on early African American burial practices, joined us from the University of Oklahoma. Dr. Phoebe Stubblefield, then a graduate student at the University of Florida, was a young forensic anthropologist and a descendant of massacre survivors. Finally, Dr. Alan Witten, a geophysicist at the University of Oklahoma, signed on to assist in the geophysical survey.

While a number of locations were suggested by informants as the possible burial sites of massacre victims, an emphasis was placed on locations where:

1. the historical evidence was either quite strong and compelling on its own, or there were multiple, independent pieces of evidence that pointed to a certain location
2. there was a relatively defined piece of ground, as opposed to a vast area, that could be further investigated using ground penetrating radar and other methods

Three locations emerged during this initial research effort as particularly strong candidates: Oaklawn Cemetery, Newblock Park, and the historic Booker T. Washington Cemetery, which had been renamed Rolling Oaks Memorial Gardens. Each had multiple pieces of evidence—sometimes oral, other times written—that pointed to them as potential burial sites.

Some initial geophysical survey work, including the use of ground penetrating radar, was performed at each of the three sites. Anomalies were detected. Some of the data, however, was likely compromised by the presence of nearby utility lines. Plans to undertake an excavation at one of the sites at Oaklawn Cemetery were cut short during the early summer of 2000 when first the Tulsa Race Riot Commission, and then the City of Tulsa, shut down any further work with regard to the search for the remains of massacre victims. This initial search was effectively over, though both Dick Warner and Kavin Ross continued to collect data on their own. Efforts by City Councilors G. T. Bynum and Jack Henderson to reopen the investigation in 2011 also ended in failure.

The current investigation was launched in early 2019 by the Office of Mayor G. T. Bynum.

New research has been undertaken since then, while the old data has been carefully reviewed. In addition to the Oaklawn Cemetery, Newblock Park, and Rolling Oak locations, a fourth site has also emerged as a strong candidate as an unmarked burial ground for massacre victims. Known colloquially as the Canes, it is the site of a sporadically active homeless encampment located along the Arkansas River between Newblock Park and the old railroad bridge below the I-244 bridge. The late Dick Warner had identified the area as a possible mass grave site in 2002. His daughter Betsy Warner, a formidable researcher in her own right, redirected attention to the area during the summer of 2019. Additional evidence has been collected in 2019-2021 which supports the idea that the area in or near the Canes may contain the unmarked graves of massacre victims.

What follows is a review of each of the four sites, and the oral and written historical evidence that suggests that they may be locations of the unmarked graves of massacre victims.

Oaklawn Cemetery

One of the oldest continually operating cemeteries in Tulsa, Oaklawn Cemetery is a city-owned cemetery located near the intersection of 11th Street and S. Peoria Avenue. An active burial ground prior to the massacre, the cemetery was also segregated. African Americans were buried near the southwest corner of Oaklawn in designated sections, including a portion of the Potter's Field. Not only is Oaklawn the site of the only two known headstones for African American massacre victims located in the city of Tulsa, those for Reuben Everett and Eddie Lockard, but there has long been a robust oral tradition that held that the relatively marker-free southwest corner of the cemetery was a burial location for the massacre victims.

During the 1998-2000 investigation for the Tulsa Race Riot Commission, Oaklawn emerged early on as a potential mass grave site. In addition to the oral tradition, the presence of the Everett and Lockard headstones, and the noted absence of headstones in the southwest corner of the cemetery, the research team also felt that the burials described by Walter White of the NAACP in his June 29, 1921 article in *The Nation*—since they involved individual graves being dug—likely occurred in a cemetery setting. However, the fact that no pre-1930s logbooks, maps, and burial registers for Oaklawn could be located made it difficult to pinpoint a particular location in the cemetery. Not only have these materials disappeared, but so has an annotated wall map that was allegedly kept in the Sexton's building. Subsequent efforts to locate these materials, both in 1998-2000 and in 2019-2021, have thus far proved to be fruitless.

Only that was not the end of the story.

The Original 18

Because in 1998, Dick Warner located written evidence that proved that African American massacre victims, both identified and unidentified, were indeed buried by the authorities in unmarked graves at Oaklawn immediately following the massacre. While going through old financial ledgers for the white-owned Mowbray and Stanley-McCune funeral homes that had lain unseen for more than seventy-five years, Warner discovered that the funeral homes had charged Tulsa County for the burial of seventeen African American massacre victims, seven of whom were identified. A sample page from the old ledger books looks like this:

CHARGE TO: Tulsa County
June 2, 1921

NAME OF DECEASED	Unidentified Negro
DATE OF DEATH	June 1, 1921
PLACE OF DEATH	Tulsa
RESIDENCE ADDRESS	"
DATE OF FUNERAL	June 2nd, 1921
INTERMENT	Oak Lawn Grave #5
PHYSICIAN *crossed out*	County Attorney
CAUSE OF DEATH	Gun shot wounds (Riot)
OCCUPATION	Unknown
SINGLE OR MARRIED	"
DATE OF BIRTH	"
PLACE OF BIRTH	"
NAME OF FATHER	"
HIS BIRTHPLACE	"
NAME OF MOTHER	"
HER BIRTHPLACE	"
SIZE OF CASKET	
STYLE OF CASKET	

And while Reuben Everett was not listed, Eddie Lockard was.

This was a big breakthrough. But it was also, once again, an incomplete portrait. For while the individual ledger pages noted that the bodies of the massacre victims were buried at Oaklawn in grave numbers #5, #6, #7 and so on, there was nothing to indicate where these graves might be located, while the cemetery itself used a different numbering system. In other words, the ledgers provided convincing evidence that these individual African American massacre victims—which have been subsequently been named the Original 18, by adding Reuben Everett to the seventeen other victims—were buried in Oaklawn. But the exact location of these burials, however, was again unknown.

Subsequent research, carried out by Betsy Warner, offered some possible clues. After carefully studying the available maps of the African American portion of the Potter's Field at Oaklawn, she then took an inventory of the currently existing headstones there, and compared this to previous inventories completed by her father. She surmised that during the 1920s, the Sexton at Oaklawn would start a new row, one for each year, for burials in the African American portion of the Potter's Field. Reuben Everett and Eddie Lockard's headstones are located in what would have been the row for 1921. Presumably, the headstones were provided at a later date by family members, or in Lockard's case, by his fraternal order. No evidence exists, however, as to why the headstones were placed exactly where they were.

The bottom line, however, is clear: the remains of at least eighteen identified and unidentified African American massacre survivors were buried by the white authorities in Oaklawn Cemetery, most likely in the southwest corner. Not only did these burials occur while the families and loved ones of these eighteen victims were being held, at gunpoint and against their will, in internment centers across the city, but efforts were clearly made over the years to keep the location of these burials secret. In other words, we know that the so-called Original 18 were buried in Oaklawn. We just do not know where.

The Clyde Eddy Site

There is, however, a potential additional site for the burial of massacre fatalities in Oaklawn as well, although it is uncertain whether those who were buried there were African American or white. In early 1999, during the initial search conducted through the auspices of the Tulsa Race Riot Commission, Dick Warner and Scott Ellsworth were contacted by Clyde Eddy, a retired Oklahoma Tire & Supply Company salesman, whom they subsequently met with and interviewed. Ten years old at the time of the massacre, Eddy lived with his family at 1008 S. Quaker, one block east of Oaklawn. But he would often cut through the cemetery when he went to visit a favorite aunt who lived a half mile or so to the southwest. And that was what Eddy, along with a cousin, was doing maybe two days after the massacre.

But as they walked through Oaklawn that day, the two boys saw maybe a half dozen wooden crates along the southern edge of the cemetery, along what was then called 10th Street. The crates were "bigger and wider than a coffin," Eddy remembered. "I think one of them might have been a piano box. These crates were just lying helter-skelter." Nearby was a group of white workmen, dressed in overalls, as well as a substantial pit or trench that had been dug into the ground. Eddy estimated that the trench was maybe twenty feet long, eight to ten feet wide, and at least six feet deep. He later figured that it had probably been dug using a team of mules.

Being naturally curious, Eddy raised up the lid on one of the crates and looked in. "Inside were three bodies," he said, "all black." He then walked over to a second crate and did the same thing. "There were at least four in that one," he recalled. About then, some of the workmen noticed the two boys, and chased them away. But Eddy and his cousin just walked to the other side of the wrought iron fence, right along 10th Street. "We watched them for a while," Eddy added. "Then we walked on."

Mr. Eddy subsequently pointed out to Dr. Bob Brooks, the State Archeologist of Oklahoma, and other members of the research team an area in Oaklawn where he believed the trench had been dug. The particular location identified by Eddy, however, was well within the white section of Oaklawn. And since it is highly unlikely, due to racial practices at the time, that white cemetery workers would have buried African American bodies in a white part of the cemetery, two potential scenarios present themselves. The first is that the bodies that the ten-year-old Clyde Eddy saw inside the crates were actually those of whites. This is not as unlikely as it may seem, as the corpses of whites can turn black after being subjected to warm temperatures over the course of a couple days. The other possibility is that Mr. Eddy was incorrect in his memory of where the trench had been located, and that the true location was actually within the African American section of Oaklawn.

The Sexton Area

In 2019-2020, during the present investigation, a third possible burial site emerged at Oaklawn, one that was located at the northwest corner of the African American section of the cemetery. An area noteworthy for its lack of headstones, it also carried with it a robust oral tradition. According to interviews conducted with a number of former sextons at Oaklawn by Betsy Warner, there was an oral tradition handed down, from sexton to sexton, over the decades, that this area, which was soon called the Sexton Area, was where massacre victims had been buried. So strong and consistent was this belief that one former Sexton, Tim Mills, even took it upon his own initiative to plant a row of crepe myrtles along the west end of the section, next to the wrought iron fence, as a memorial to the massacre victims buried there.

The area also lined up, in part, with the testimony provided by Darren Cravens, who reached out to Reverend Robert Turner, Kristi Williams, and other members of the Public Oversight Committee. In particular, Darren shared memories regarding his grandfather, Willie Cravens, who served as the Sexton at Oaklawn for a number of years after World War II. According to the Willie Cravens, who spoke with his young grandson about the matter prior to his death in 1983, massacre victims were buried "beneath a road" in the African American section of Oaklawn near the western edge of the cemetery. Since Willie Cravens was only three years old at the time of the massacre, it is clear that he did not know this information first-hand. Instead, it had likely been passed down to him, decades later, by a previous sexton. Nonetheless, there were roads in the African American section of Oaklawn that do not exist today, and this may have been what Willie Craven's source was referring to. In addition, the Sexton Area was large enough in area to contain either the graves of the Original Eighteen or, conceivably, either all or a portion of the 120 graves that O.T. Johnson of the Salvation Army described to Walter White of the NAACP.

Geophysical survey work performed in the Fall of 2019 revealed the presence of an anomaly in the Sexton Area that had the features of a mass grave. A subsequent excavation, carried out in July 2020, however, turned up no human remains.

Newblock Park

Perhaps no other area in the city of Tulsa has been consistently referred to as the possible burial site for massacre victims than the area that, today, includes Newblock Park. Rumors to that effect have persisted for years, as does a robust oral tradition in both the African American and white communities. But during the initial search conducted during the era of the Tulsa Race Riot Commission, second-hand evidence emerged that points to the area as a potential location for a mass grave. These included several telephone calls that were fielded by Dick Warner and Scott Ellsworth in late January and early February 1999, after both the *Oklahoma Eagle* and the *Tulsa World* published appeals for information regarding massacre victims and the disposition of their bodies. Among the calls that were received included the following call log notations:

> *Harvey Remington*
>
> He was a young boy at the time of the riot. He went to a friend's house and saw a photograph of a man standing beside a truck that had about 50 Black bodies piled on it. The man was The man was related to the boy's friend. The man had been paid by the City to haul bodies to a grave that was already dug in Newblock Park.
>
> *Jim Harrison*
>
> He told me that his great uncle was a ditch digger and dug sewers, etc. He told [his nephew] that the bodies were buried in Newblock Park.
>
> *Douglas Little*
>
> [His wife] said that her uncle told her that some bodies were taken to the City Incinerator and others were buried in Newblock Park.
>
> *Mark Roberts*
>
> He worked on a crew that was building a storm line from the fire Station in Newblock Park to the river about 16 or 17 years ago. Member of his crew told him that riot victims were buried near the old incinerator.
>
> *John Johnson*
>
> He was born in 1938. He said that his step-dad who was born in 1900 told him that bodies were taken to Newblock Park where some were thrown into the river and others were buried between the ball park and the old swimming pool.
>
> *Joe Welch*
>
> Mr. Welch said that his father lived on the 3rd Street hill just east of Newblock Park. He said that his father told him that that he saw two or three trucks loaded with bodies going toward Newblock Park. He said there were two burial sites in Newblock Park. The first is directly south of the old swimming pool between the levee and the river. The other site is further west at the end of the park, south of the first commercial building, and between the levee and the river.

Pat Gordon

His father was 8 or 9 at the time of the riot and lived at 4th and Phoenix. He saw loads of bodies being taken to the city incinerator.

David Mead

His father told him that flatbed trucks with bodies were taken to the river and the bodies dumped and other loads were taken to Newblock Park where the bodies were buried in a sand bar. He was told 6 trucks or so took part.

Lonnie Gosnell

His grandfather, Bert Gosnell, had worked for the Mid-Continent Refinery at the time of the riot. Following the riot, his grandfather said that he worked on a crew that loaded bodies onto flatcars along First Street near the old depot on to the Sand Springs line. The grandfather said he had help load 200 bodies onto the flatcars and that they were stacked like "cordwood." Part of the bodies went to Newblock Park where they were burned in the city incinerator. Another group of the bodies was taken to a sand bar near the bridge (presumably the railroad bridge).

It should be pointed out that these accounts are second-hand evidence—that is, none of these callers witnessed the events that they are describing, but were told about them by others, often family members. Nonetheless, all told, they are a powerful testament to the likelihood that the bodies of a significant number of massacre victims were taken to the area around what is now Newblock Park, and were buried there.

Investigations at Newblock, 1998-2000

From the beginning of the research efforts that were launched in 1998, the area around Newblock Park quickly emerged as an area of interest to the research team. It is important to remember, however, that the park itself was not in existence in 1921. Rather, the area included the city incinerator, the site of a former dump that was still being used as an illegal trash site, a slow-moving creek, and low ground that, because the levee hadn't been built yet, was subject to flooding. And while, on the surface, the idea that bodies of massacre had been burned in the city incinerator made sense, Dr. Clyde Snow quickly disabused team members of that notion. "They couldn't have gotten it hot enough," said Snow. "It would have been too difficult to engineer."

That being the case, the question was then, and always: Where?

Where might the bodies of massacre victims have been buried at what later became Newblock Park?

Despite a deep dive into any and all records that could be found relating to Newblock, however, no written evidence could be initially found that gave any clues to where such a grave might be located. Instead, in 1998, an intriguing oral account emerged.

The Jack Britton Story

One day near the end of World War II, a white thirteen-year-old named Jack Britton was walking along the railroad tracks that ran between Newblock Park and the Arkansas River when he came across some workmen who were, to his thinking, “digging some kind of a swimming pool.” The men had temporarily stopped their excavation, however, as they had run into a large number of human bones. Apparently, they told the teenaged Britton that the bones were from the race massacre. When he came back some two days later, either the hole had been partially filled or maybe fenced off. Either way, he no longer had access to any more bones. But for years afterward, whenever Jack Britton would drive his family by Newblock Park along Charles Page Boulevard, he would often point and say, “That’s where they buried them riot people.” And while Britton was deceased, he had told the same story, consistently, to friends and associates who did not know each other, over the course of several decades. The story, to the ears of the research team, had an unmistakable air of authenticity.

But, again, the question was where? Where in Newblock Park might have Britton stumbled upon the workmen and their excavation? There had indeed been a swimming pool at Newblock Park, but it had been built in 1928—and not at the end of World War II. Dick Warner then made another discovery, this time in the old records of the water and sewer departments of the City of Tulsa In 1945, a sewage left pump station had been constructed in Newblock Park, less than fifty feet from the railroad line. And to a thirteen- year-old, the room-sized hole needed to accommodate the station might have indeed looked like a swimming pool.

Encouraged by these findings, State Archaeologist Bob Brooks arranged for a geophysical survey in 1999 of the location where the 1945 lift pump station had stood, but the results were inconclusive. A second geophysical survey conducted in 2019 revealed no anomalies at the site that suggested the presence of a mass grave. But another possibility also presents itself, namely that the excavation that Jack Britton may have witnessed may have instead been located at the Canes, an area nearly adjacent to Newblock Park, where considerable sewer construction also took place near the end of World War II. It is also conceivable that the excavation that Britton witnesses was related to the extension of the levee near both the Canes and Newblock. In any event, in the case of either the Canes or Newblock, very little geophysical survey work has yet been undertaken.

There is, however, another possible location for a mass burial site at Newblock.

The Hugh McKnight Site

In October 2020, a gentleman named Hugh McKnight contacted the City of Tulsa about a possible burial site. Ashley Phillipssen, of the mayor’s office, passed the information on to Mechelle Brown at the Greenwood Cultural Center. Ms Brown then contacted Scott Ellsworth, who followed up on the tip. Ellsworth spoke over the phone with Mr. McKnight, a retired City of Tulsa Parks Department employee, from his home in Amarillo, Texas. On November 7, 2020, Ellsworth met Mr. McKnight at Newblock Park, where they were later joined by Mark Hogan.

In 1970, fresh out of college, McKnight was a brand-new employee of the Parks Department, where he worked as a junior-level supervisor out of an office at Newblock Park. One day that fall, an older Parks Department employee named Lloyd Columbus "Buck" Mosier, pulled McKnight aside as told him, "There's something you ought to know about." Mosier then pointed out two locations at Newblock where, he said, massacre victims were buried. Mosier, then roughly fifty-seven years old, had worked for the Parks Department since at least 1940—less than twenty years after the massacre. And while he had been just a child in 1921, and had clearly received the information from someone else, it is possible that Mosier had been told about the burials by an actual eyewitness.

Concerned about the revelation, McKnight then contacted his supervisor and told him what he had learned—only to be brushed off. "There's no proof anyway," McKnight was told. Directed not to do any digging in either area, McKnight was told to forget the whole thing. It was not until 2020, when McKnight heard about our current effort to locate the mass graves of massacre victims, that he then reached. At Newblock, he pointed out two areas, neither of which had been identified before.

The Canes

Closely associated with Newblock Park is a triangular patch of land, bordered on one side by the Arkansas River, and on the other two by railroad tracks, that is located less than three hundred yards from the park boundary. The on and off site of one of several homeless encampments that stretch from the old Eleventh Street bridge along the east bank of the river toward Sand Springs, the site is known as the Canes because of the presence of a large, towering stand of Spanish cane, *Arundo donax,* that bisects the area near its upstream end. The area, which abuts the old railroad bridge, has an upper and lower level. Now overgrown with river birches and other trees, aerial photographs of the area from earlier decades show considerably less vegetation. In the mid-1940s, new sewage lines cut across the upper portion of the area.

The Canes first came to the attention of Dick Warner as a possible burial location in 2002, when Warner was contacted by Randy Krehbiel, a reporter with the *Tulsa World.* Krehbiel had received a call from a former Tulsa police named Bob Patty, who said that he had information on where massacre victims had been buried. Warner reached out to Patty, whom he and Krehbiel interviewed. During the course of the interview, Mr. Patty said that he had been shown a box of massacre photographs by Sergeant Wayburn J. Cotton at police headquarters during the winter of 1973.

Of particular interest was a photograph that Patty described as showing the burial of massacre victims in a trench. Dick Warner described what Patty had said in a memorandum to Scott Ellsworth:

June 14, 2002
To: Dr. Scott Ellsworth
From: Dick Warner
Subject: Interview with Robert Patty, former Tulsa policeman

The photograph that Mr. Patty said would interest us was of a trench with bodies in it. He thought he recognized the area and mentioned it to the Sgt. The Sgt. got very tense and took the photographs away and told the officers never to say that they had seen them. Mr. Patty said the tenseness of the Sgt. was not like him. He was always cool, even under fire, but he got really tense when the location was mentioned.

The photograph was very detailed and taken from not too far a distance. Mr. Patty said that the photograph seemed to have been taken from the east looking west and in the early morning. It was taken from a railroad track. To the north (right) was a slope with a railroad track running along the base. The track made a curve to the right around the sloped hill. At the top of the slope were some trucks containing bodies wrapped in sheets or tarpaulins. Bodies were being carried down the slope. About 100 feet from the base of the slope was a trench running east to west. Bodies were laying in the trench. He estimated there were about twenty-five bodies on the top level and he thought there was one or more levels under that one. The bodies were wrapped in sheets and tarpaulins.

A man with a shovel was throwing a white powder over the bodies which he assumed was lime. An old-style bulldozer was parked next to the trench. The men in the photograph were of two kinds. They were all white. Most of them were in work clothes, but there were several men in slacks and white shirts who were watching. The man who seemed to be in charge was in a white shirt and carrying a shotgun. He had on a black cowboy type hat and a western tie (not a bolo). Several of the men in white shirts were also wearing black cowboy style hats and he could see badges on some of them.

The photograph had the date, June 3, 1921, written on it.

Equally important, Patty felt that he knew where the photograph had been taken, namely near the triangular shaped patch of land that ran alongside the river just to the north of the old railroad bridge that was located just downstream from Newblock Park. Dick Warner agreed, and communicated his finds to Ellsworth. But since the search for the graves had been shut down by the riot commission, there was nothing that could be done at the time with the information.

That changed with the current investigation was re-started in 2019. Betsy Warner managed to track down Bob Patty, whom Scott Ellsworth interviewed late that summer. Once again, Patty told a consistent story. Moreover, there were other pieces of evidence that helped to bolster the idea that a mass grave may have been dug the area.

One of the most important was an interview that Ed Wheeler conducted with an elderly white man in 1970-71. According to this man, he had walked out onto the railroad bridge—the same one that is next to the Canes today, next to the I-244 overpass—the day after the massacre. Right beneath the bridge, on the Tulsa side of the river, was a large sandbar, and out on that sandbar the bodies of massacre victims had been laid out in one or two rows. The man counted some sixty-eight bodies, mainly African American. Then, either one or two days later, the man returned to the bridge, and again looked out onto the sandbar. The bodies, however, had disappeared. What had happened to them? And why, in the first place, had they been laid out on the and bar to begin with?

A hypothesis soon developed. It held that the authorities had temporarily placed these bodies on the sand bar while they were figuring where to bury them. Not only would these bodies help to account for the oral tradition that held that bodies were dumped into the Arkansas River, but the proximity to rail lines might explain some reports that the bodies of massacre victims were said to be observed on railroad flat cars. Perhaps a day later, once the trench was dug by the steam shovel, as described in the photograph that Officer Patty saw, the bodies were carried off the sandbar, walked up the bank, and buried in the trench.

While this is just a theory, other pieces of evidence exist that may well support it, including a most unusual purchase of ice by Tulsa County for the month of June 1921. Normally, the county would only spend perhaps six dollars per month for ice, likely for use in the county children's home. But in June, the county spent fully $90 for ice, which at the time was equal to as much as six tons' worth. This ice, it is theorized, may have been used to slow the decomposition of the bodies on the sand bar, in the June heat, until they were buried. Additional oral evidence has also come to light which also points to the Canes as a possible mass grave site.

Acting upon this evidence, in the fall of 2019, geophysical survey work was done on a small portion of the lower level of the Canes. While two anomalies were discovered, both were too small to be associated with a large trench grave. A second portion of the lower level was surveyed in early March 2020, but no anomalies of interest were detected.

Booker T. Washington Cemetery [Rolling Oaks Memorial Gardens]

Predating the 1921 race massacre, the historic Booker T. Washington Cemetery is one of the oldest and most storied African American burial grounds in Tulsa. Although its location along E. 91st Street between Harvard and Yale is a long way from the city's north side, during the early decades of the Twentieth century, this was the preferred cemetery for many of Greenwood's most prominent families. John Hope Franklin's parents are buried here, as are his brother and his sister, Mozella Jones. The cemetery first came to the attention of Scott Ellsworth and Dick Warner as a possible resting place of massacre victims during the spring of 1998.

A little less than a year earlier, on Memorial Day in 1997, an elderly African American woman, who carried a distinctive handmade blue walking cane, came to pay her respects to her elders who were buried at the Booker T. Washington Cemetery, soon to be renamed Rolling Oaks Memorial Park. During her visit, she pointed out to cemetery workers an area of the cemetery, located adjacent to the south ends of Sections 2 and 3, where, she said, African American massacre victims had been buried. The woman's grandfather, she said, had owned a truck that, miraculously, had not been destroyed during massacre. And once the city's African American population had gotten out of the internment camps, and returned to Greenwood, human remains were occasionally discovered amongst the ashes. The woman's grandfather then drove these remains to Booker T. Washington Cemetery where, presumably with the help of family members, they were buried. Despite extensive efforts to learn her name, the identity of this woman remains unknown. She did not return to the cemetery on Memorial Day 1998.

Two other individuals with similar stories, however, did.

Sarah Butler Thompson, whose grandmother had survived the massacre, said that her grandmother told her that massacre victims had been buried near the copse of trees at the south end of Section 2.

Elwood Lett had only been four and a half years old at the time of the massacre, but he was a survivor nonetheless. His grandfather, a man named Billy Hudson, gathered Elwood and the other children in a wagon, and headed out for Nowata. "He threw blankets over us," Lett remembered, "because they were still rioting." Maybe two years after the massacre, after his aunt had died, Lett had gone out to the cemetery with his grandfather to help decorate her grave. While there, the grandfather pointed out the same area that the mystery lady with the cane had indicated, and told his grandson that that's where they had buried some of the massacre victims.

While the number of massacre victims buried at Rolling Oaks may be quite small, it is important to remember that these burials were fundamentally a world apart from those which occurred elsewhere in Tulsa. They were nothing like the burials described by Walter White in *The Nation,* or those that are believed to have taken place at Oaklawn, Newblock, and the Canes, which were directed and overseen by white authorities, with absolutely no regard for the families of the victims. Rather, at Rolling Oaks, it was the African American community burying its own. And there is no doubt but that these interments were handled with care, respect, and love.

CHAPTER 3

EXPECTED ARCHAEOLOGICAL CORRELATES OF INDIVIDUAL AND MASS GRAVES

Kary L. Stackelbeck, Ph.D.

In Chapter 2 of this report, Ellsworth presents a detailed account of the documents and oral historic accounts that led the Physical Investigation team to propose three locations within Oaklawn Cemetery as areas of interest. Archaeology can provide physical data that are missing from historical documents—whether that is because the events or people being studied are underrepresented in or intentionally excluded from traditional recorded historical accounts or the time period in question predates the advent of written records in a given region. This is particularly the case when it comes to historic cemeteries. Individual graves and entire cemeteries can become forgotten under normal circumstances, let alone clandestine cases: Headstones are removed or damaged; land tenure and stewardship responsibilities change; family members no longer visit or decorate graves of loved ones; and records become lost, even if they once existed, among other scenarios.

This situation is even more challenging for historic cemeteries that suffered intentional differential treatment and documentation standards as a result of racist practices. Like many other contemporary cemeteries, Oaklawn has sections that were differentially populated based on Jim Crow-era segregation (Figures 3.1-3.2). The full extent of the impacts of racially-motivated burial practices at Oaklawn is not currently known, but differences in recordation among White and Black burials in the cemetery ledgers are stark. These disparities are among many that have presented challenges in our efforts to locate and recover the remains of victims of the 1921 Tulsa Race Massacre that are purportedly buried in Oaklawn Cemetery—particularly the Black Potter's Field—based on the few records and oral historic accounts that provide viable leads.

The historical overview presented in Chapter 2, recommendations of the first Commission issued by Dr. Clyde Snow (2001:120-122), and the results of geophysical survey (Brooks and Witten 2001; Hammerstedt and Regnier 2019; Maki and Jones 1998) led the Physical Investigation Committee to propose the Sexton Area, Clyde Eddy Area, and Section 20 of Oaklawn Cemetery as potential candidates for test excavations—referring to the latter at the time as the "Original 18 Area." As discussed below, the limited historical records on the Massacre and geophysical survey guided the development of working hypotheses regarding potential locations of buried victims. However, those guides do not necessarily tell you who—or what—you will find once you break ground. From an archaeological perspective, one must use the available information to craft an approach to ground-truth a given hypothesis. Ground-truthing typically comes in the form of collection of soil samples, careful excavation, observation of relevant patterns in the soil and material culture, and copious amounts of record-keeping and specialized documentation. Before discussing specific areas investigated within Oaklawn Cemetery, we present a brief overview of archaeological correlates (or signatures) associated with different burial practices that are relevant for the current investigation.

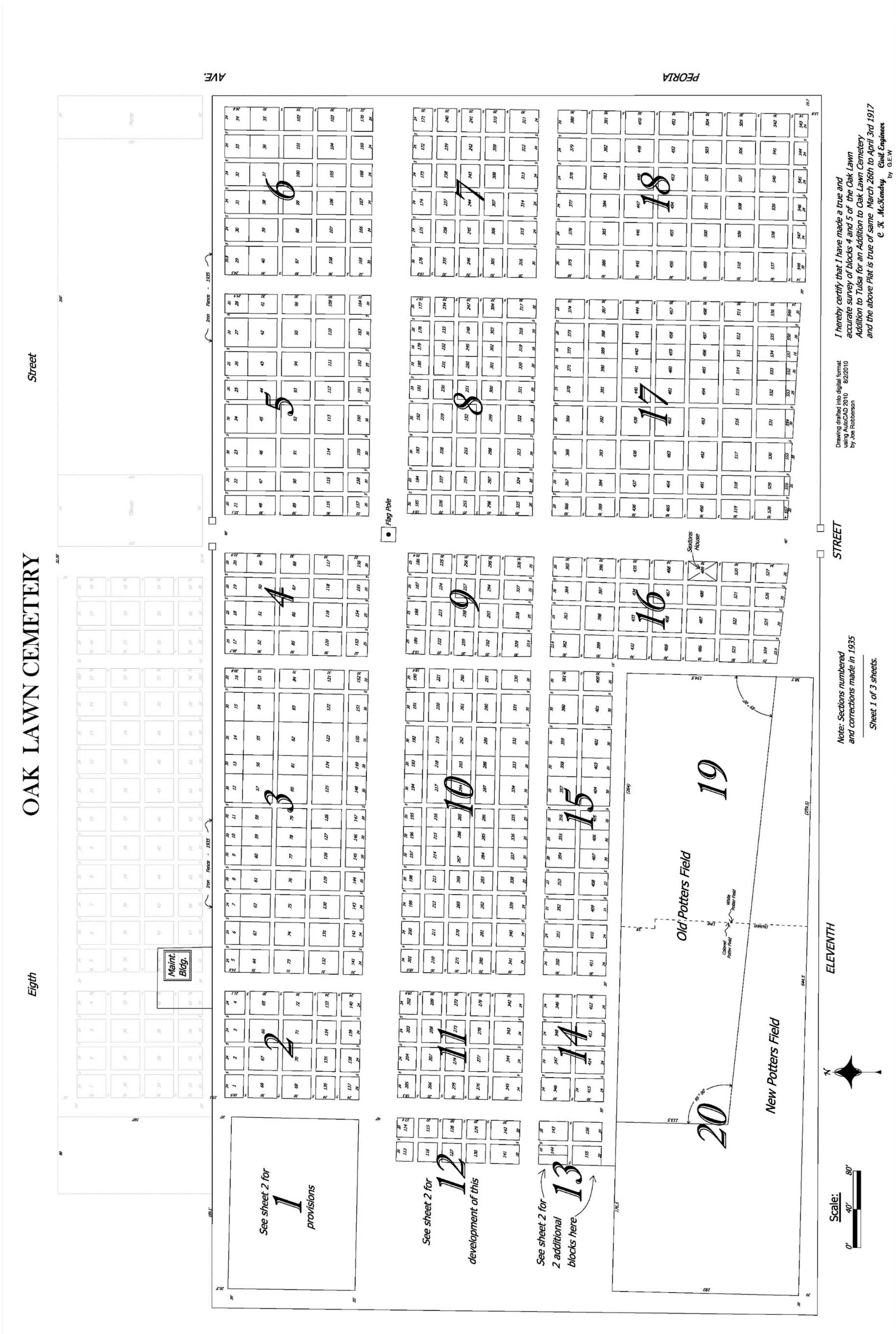


Figure 3.1. *Portion of a replica of 1917 map of Oaklawn Cemetery; note the division line between the "White" and "Colored" Potter Fields, displayed here as Sections 19 and 20, respectively. (image courtesy of the City of Tulsa).*

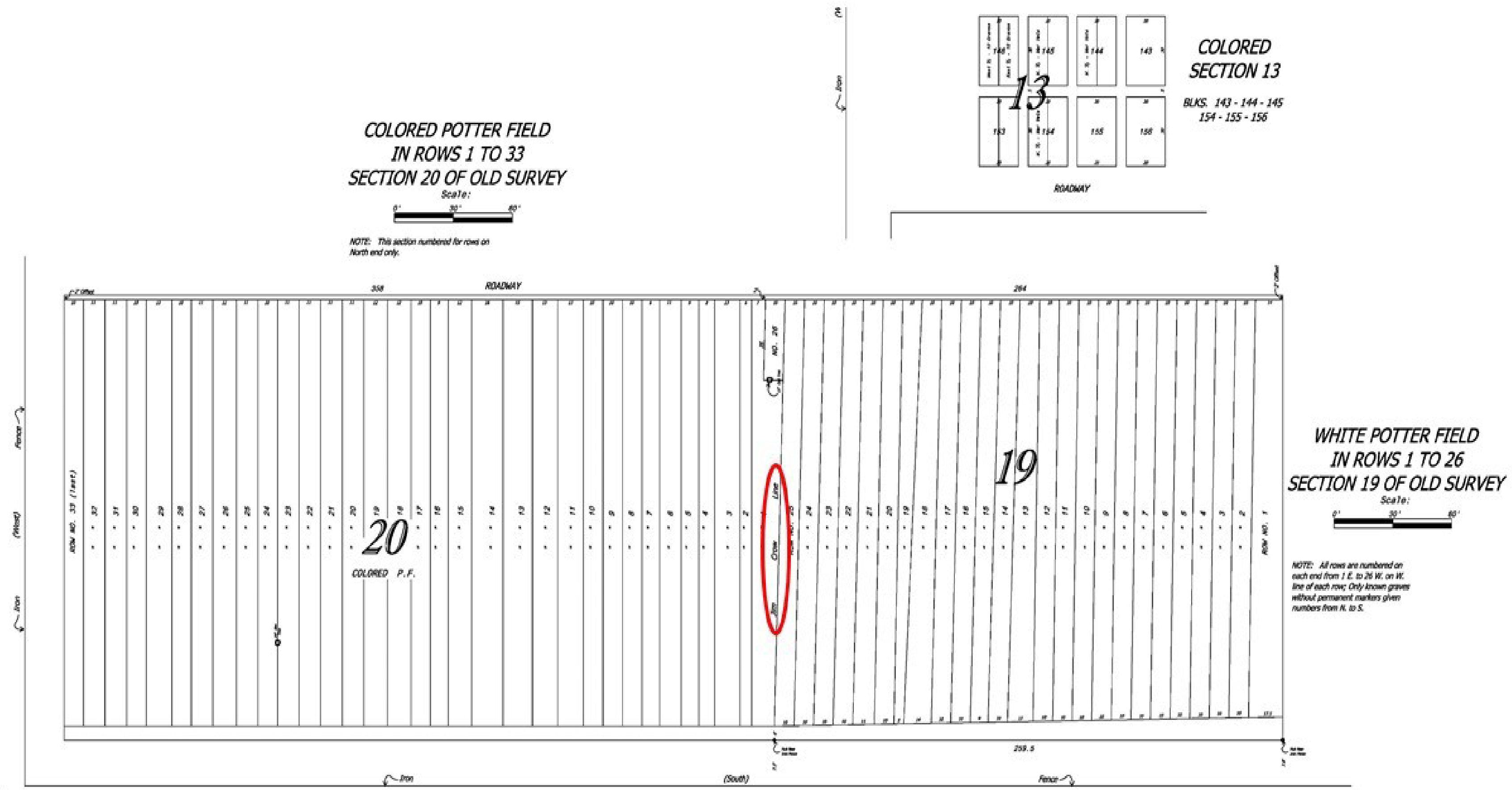


Figure 3.2. *More detailed view of rows in Sections 19 and 20 of a replica of 1917 map of Oaklawn Cemetery; note the division line (circled in red) demarcating the Jim Crowe Line between the "White" and "Colored" Potter Fields. Note that Section 13 as shown here is a map inset and is not in its actual position relative to Sections 19 and 20. (image courtesy of the City of Tulsa).*

Archaeological Correlates of Individual vs. Mass Grave Shafts

Burial practices may be usefully grouped into two broad categories: those that involve individual interments and those that include multiple individuals who are interred at or about the same time. These broad categories encompass a diversity of regional, cultural, and contextual patterns as part of normal funerary practices, let alone under clandestine circumstances or in response to mass-casualty events. Archaeological signatures that typify individual and group graves (i.e., mass graves) are discussed briefly here with specific reference to the expected correlates for Oaklawn Cemetery based on the available historic data and interpretations. The ensuing chapters that follow present different elements of the results of the investigations completed in June and October 2020 and June-July 2021 in the Sexton, Clyde Eddy, and Original 18 Areas.

Archaeological Signatures of Individual Grave Shafts

Typically, when a single individual is buried in a coffin, the process entails the excavation of a hole—or “shaft”—that is somewhat larger than the coffin to accommodate lowering of the burial case into the bottom of the grave. The dirt that is removed to create the hole is typically set to the side. Upon placement of the coffin, the grave shaft is then refilled, usually with the same soil that had been removed to create it. The digging and movement of the soil mixes it in ways that disturb the natural soil layers. These mixed soils are a key trait that tells archaeologists that the natural soil has been disturbed and a pit has been dug. Over time, as the remains of the individual and the coffin deteriorate, the soil encompassing the burial becomes enriched with organic matter and often becomes darker in color. Further, as the coffin collapses, the overburden begins to slump inward, creating a sunken area or shallow depression in the ground surface at the top of the grave shaft. In this manner, the burial shaft above the level of the coffin becomes distinguishable from the soil around it because it will appear to be a block of disturbed soil that is surrounded on all horizontal sides by intact natural stratigraphy or otherwise differentiated deposits. The distinction is often clearly apparent in profile view (Figure 3.3). At the base of the shaft, the soil immediately surrounding the coffin or casket usually is distinguishable in color, texture, and compactness compared to both the natural soil around it and the burial case and its contents. With appropriate conditions and adequate visibility, one can accurately measure the dimensions of the shaft, which will be slightly larger than the burial case. In a cemetery, there may be a series of individual burials that display this pattern with a row(s) of individual grave shafts being separated by small sections of intact, natural stratigraphy.

Archaeological Signatures of Mass Graves

Archaeologists and forensic anthropologists regularly work within a realm of unknowns—situations where we use available data and material evidence to develop interpretations of past human activity without the benefit of actually observing the event we hope to understand. This process includes the use of modern case studies to inform expectations of the material markers of certain kinds of human behavior that may remain in the ground. In order to understand the results of the fieldwork completed in Oaklawn Cemetery to date and the basis for future investigations, it is appropriate to discuss different models of mass graves and their associated archaeological signatures.

By definition, mass graves contain the remains of multiple individuals who are interred at or about the same time. Historically—and more recently—such burial practices have been tied

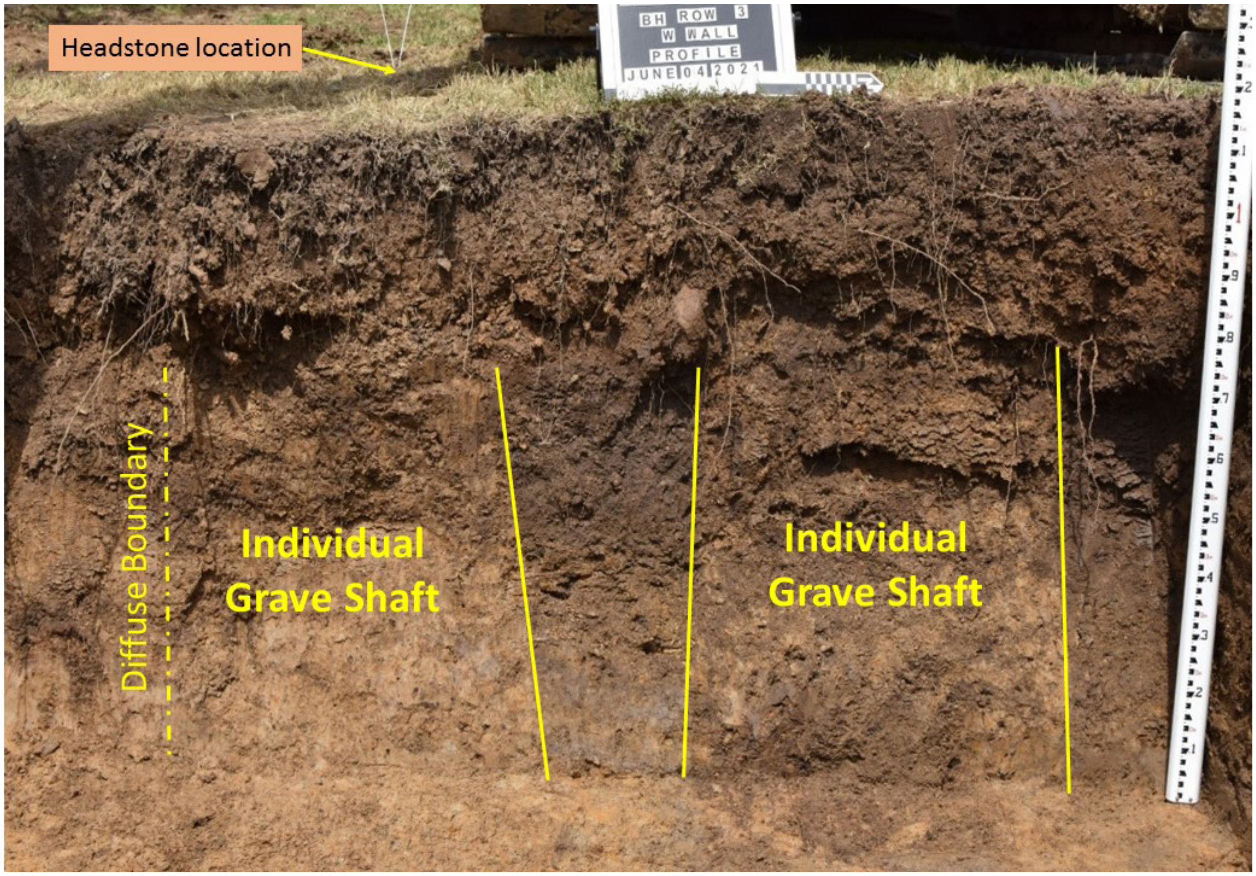


Figure 3.3. *Profile view of two individual grave shafts as exposed in the western wall of Backhoe Row 3 in the block excavations in Section 20 at Oaklawn Cemetery. Headstone markers near the excavation block were removed prior to initiating fieldwork in order to avoid damaging them. Their positions were plotted so the headstones could be returned to their correct location. The position of one of these headstones is noted in this image as it corresponds to the individual grave shaft shown on the left.*

to two principal types of events: 1) those that result in mass casualties, such as pandemics or natural disasters; and 2) those that result in the deaths of multiple individuals due to mass murder, war, or similar intentional human behavior. The latter may result in collective interments that are intentionally hidden from public knowledge, and thus may be difficult to locate after the original event—especially when 100 years have passed. There are various examples of each of these types of mass graves, several of which are displayed in Figures 3.4-3.11. Each example has different implications for the archaeological signatures that would result over time, and thus the ability to recover and document them in the future.

Mass graves can include a series of individual grave shafts that are excavated concurrently (or nearly so) to accommodate a mass casualty event. Some recent examples of this method are evident in Brazil (Figure 3.6) and Sierra Leone (Figure 3.7), where individual grave shafts were excavated to inter victims of COVID-19 and Ebola, respectively. Note, however, that individuals in the Brazil case were buried in coffins, whereas those in Sierra Leone were buried in body bags. Unless one is otherwise aware through cemetery records or other documents (e.g., death certificates, funeral home records, newspaper articles) that these burials were part of a mass casualty incident, it would be difficult to distinguish this type of mass grave from rows of unrelated individual burial events. Distinctions of each individual person are dependent on records and markers that provide the identity and particular physical details for each decedent (name, sex, age, date of birth, date of death, etc.). Indeed, the ability to maintain these distinctions among individuals in any given cemetery is similarly dependent on accurate record-keeping, maintenance of markers or headstones, and affirmation through persistent visits and decoration by loved ones. Without records, the skeletal remains and associated materials will only preserve partial histories of these individuals, let alone their collective mortality due to a common cause such as a pandemic. The ability to recover those details depends on preservation among many other factors.

Arguably, the more stereotypical mass grave involves the excavation of a hole or pit that is larger than is necessary for a single individual (e.g., Figures 3.4, 3.5, 3.8, and 3.11). The size and dimensions of the mass grave shaft varies depending on the number of known or expected decedents, and the extent to which individuals are (or are not) encased within coffins that are to be placed within the shaft. Modern examples of this type of mass grave are known where victims of murder and attempted genocide have been interred without any effort to place the decedents within individual coffins (e.g., Iraq, Guatemala, and the former Yugoslavia [Figures 3.9, 3.10, and 3.11]). Still other examples demonstrate the challenges associated with burying numerous victims of the COVID-19 pandemic and trying to anticipate how many more are yet to come (Figures 3.4-3.6).

Among mass casualty events, there are examples of people interred within individual burial containers within a larger common grave shaft (Figures 3.4 and 3.5), and cases where numerous victims were interred adjacent to each other without any containers besides a body bag and the soil that covered and encased them (Figure 3.8). One example from Brazil involved the excavation of a series of multiple trenches that give the appearance of rows of burials (Figure 3.5). The archaeological signatures of each of these examples will be distinctly different years or decades after burial.

The starting point for this form of mass grave is the excavation of a single large hole or trench (Figures 3.4, 3.5, 3.8) or series of holes (Figures 3.6-3.7). The soil that is displaced for such a grave shaft—backdirt—is typically set adjacent to the hole for use in refilling. The decedents may be placed within the hole in adjacent and/or stacked coffins (Figures 3.4-3.5) or as bodies that are stacked adjacent and on top of one another without being placed in separate, solid containers (Figures 3.8, 3.9, and 3.11). Once the burials are in place, the backdirt is returned to the hole, covering the bodies and filling in the spaces between and overlying the remains—thus sealing the entire group interment. Archaeologists often refer to this fill as “overburden.”

The distinctions between individual grave shafts described above and a single trench that contains multiple individuals are very different. In the latter case, the soil between and over the remains is relatively homogenous in terms of soil color and texture, albeit mixed; this block of soil will also be distinguishable compared to areas of undisturbed soil layers and/or individual grave shafts that may be apparent in the areas surrounding the mass grave shaft, depending on the context (e.g., a clandestine mass grave in an unmarked location vs. within a cemetery amongst individual graves).

The archaeological signatures of each example discussed above and presented in Figures 3.4-3.11 would be different and require different methods of discovery and recovery. Importantly,

<Figure 3.4. *Trench burial of COVID-19s victims in New York City's potter's field on Hart Island. Note that the coffins are stacked and the trench is excavated to accommodate more anticipated decedents (Slotnik 2021). Photograph: John Manchillo/Associated Press.*

Figure 3.5. *Example of a mass grave of COVID-19 victims in the Parque Tarumã cemetery in Brazil (Phillips and Maisonnave 2020). Note the excavation of trenches in rows and placement of individual coffins, each with a marker on the ground surface upon burial. Note also the backdirt that is set aside, pending replacement over the coffins once they have been placed. Photograph: Michael Dantas/AFP via Getty Images.*

Figure 3.6. *Burial of an individual who died due to complications from COVID-19 in the Vila Formosa Cemetery in Sao Paolo, Brazil (Associated Press 2021). Note the empty individual grave shafts anticipating additional coffins. The future archaeological signature of each of these grave shafts and coffin remnants will be very similar. Photograph: Andre Penner/Associated Press.*

>Figure 3.7. *Ebola victims in Sierra Leone are buried in a series of individual grave shafts (Muller and Maxmen 2015). The lack of coffins or caskets will affect the rate of decomposition and the archaeological signature of these burials, which will principally be defined by the shaft and the skeletal remains. Photograph: Pete Muller/ National Geographic.*

*<**Figure 3.8.** Victims of Typhoon Haiyan, which struck the Philippines in 2013, were placed in body bags and then laid to rest in this mass grave in Tacloban (Myall and Aldridge 2013).*

***Figure 3.9.** One of multiple mass graves on the edge of the Ash Sham Desert in Iraq under investigation in 2006 (Burns 2006). Spent cartridges found amongst the bodies attest to the fact that this was not only the location of the victims' burial, but also the site of their murder. Photograph: Erik de Castro. Imaged altered to blur sensitive content.*

>Figure 3.10. *Members of a local Guatemalan community observe as forensic specialists document remains found in a mass grave from that country's civil war, which lasted from 1960 to 1996 (Trull 2015). According to the website for the Fundación de Antropología Forense de Guatemala (Guatemalan Forensic Anthropology Foundation, [FAFG]), the non-profit organization has recovered 8,189 victims, collected 16,224 family DNA samples, compiled 650 life histories, and identified 3,709 individuals over the course of 24 years of investigation. Photograph: FAFG.*

Figure 3.11. *Photo Exhibit used in International Criminal Tribunal for the Former Yugoslavia (ICTY) Srebrenica Cases: Exhumation site in Čančari valley (Flickr 2022, Creative Commons Attribution 4.0 Generic License. Image altered to blur sensitive content). This image displays an example of co-mingling of skeletal remains that occurs in a mass grave as soft tissue decomposes over time.*

in each of these cases, the remains of people who died at or about the same time were next to others who met a similar fate. In the case of the 1921 Tulsa Race Massacre, the Physical Investigation Committee has been working under the assumption that mass graves of different varieties may exist and await discovery. This report presents the results of initial investigations in three areas within Oaklawn Cemetery: Sexton Area; Clyde Eddy Area; and the Original 18 Area in the southwest portion of Section 20.

Efforts to Locate a Mass Grave in the Sexton Area

As noted by Scott Ellsworth (Chapter 2, this volume) and Betsy Warner (2019), one lead pointing to burials of victims in Oaklawn Cemetery came from individuals who worked for the cemetery and were charged with managing the burial process and maintaining records. Oral history passed from one sexton to another held that massacre victims were buried in an open space along the western edge of the cemetery that is otherwise devoid of headstones. The burials were purportedly beneath a road that was once present in this part of the cemetery but is no longer extant. So strong was their belief in this account that one sexton, Tim Mills, planted a row of crepe myrtles to demarcate the space and commemorate the deceased (Figure 3.12). Further, given the lack of marked or recorded graves, there was an apparent intentional effort to not bury anyone else in this part of the cemetery.

The account provided by the sextons is useful for identifying a possible location to investigate, but it lacks specific details regarding the nature of the grave(s) and the number of individuals included therein. As Ellsworth noted (this volume), this could have been the area that held the "Original 18" or the 120 graves that O. T. Johnson of the Salvation Army described to Walter White of the NAACP. Those scenarios present very different potential archaeological signatures. Regardless, when one has a location to target, traditional archaeological techniques can be used to evaluate the presence—or absence—of graves.

As the reopened investigation into the Tulsa Race Massacre began, the Physical Investigation Committee determined that the first step was to perform geophysical survey at the locations of interest—both at places where earlier geophysical survey had been completed (Maki and Jones 1998; Brooks and Witten 2001) and new sites that had come to light in the twenty-odd years since. Theoretically, if a mass grave was present, it would be detectable through a geophysical survey because it would represent a geographically bounded area where the soil had been disturbed and contents added (i.e., burial containers and/or human remains), thus creating a feature that would be distinctive compared to the surrounding matrix.

The results of geophysical survey completed by the Oklahoma Archeological Survey (OAS) at Oaklawn Cemetery revealed a rather large soil anomaly in the Sexton Area (Hammerstedt and Regnier 2019:20-23). The size, location, and orientation of this anomaly was considered to be consistent with a mass grave akin to that shown in Figure 3.4. This anomaly, paired with oral history accounts, led the Physical Investigation Committee to recommend test excavations at this location (Figure 3.13) to ascertain if it represented a mass grave—perhaps associated with the 1921 Tulsa Race Massacre. The goals of this testing were to: 1) establish the presence or absence of human remains; 2) determine the nature of the interments (if present); and 3) obtain data to help inform the next steps in the investigation—including appropriate recovery efforts. The original plan was to initiate excavation on April 1, 2020. Due to the COVID-19 pandemic, however, the start date was pushed to July 13 and this phase of fieldwork completed on July 22, 2020.

Three backhoe trenches (A-C) were excavated in the Sexton Area. Trench A was situated over the large geophysical anomaly discussed above (Figure 3.13). This trench measured approximately 6 m (19.7 ft) east/west by 3 m (9.8 ft) north/ south. Excavation of Trench A revealed a series of overlapping and tightly compacted sediment fill episodes that continued from just beneath the surface to approximately 10 feet below ground surface (see Figure 4.13). The fill included various early- to mid-20th century artifacts, grave-related artifacts from elsewhere in the cemetery (e.g., vases, decorations, temporary markers), construction debris, and non-local soil that had been dumped in this location (see Figure 4.13; Appendix D). No evidence of a mass grave or human remains was encountered in Trench A.

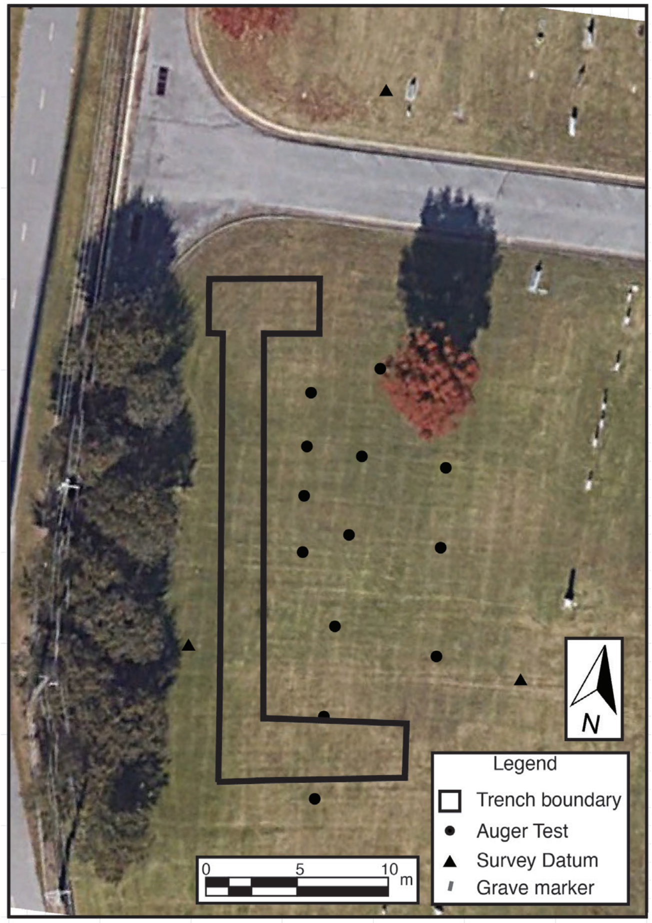


Figure 3.12. *Aerial view of Sexton Area with mapped locations of excavation trenches and auger tests. Note the crepe myrtles along the western edge of the cemetery.*

Trench B measured roughly 26 m (85.3 ft) north/south by 2m (6.6 ft) east/ west from the southern wall of Trench A (Figures 3.13 and 3.14). Trench C was excavated about 3 m (9.8 ft) to the east from the south end of Trench B. These excavations similarly did not result in the identification of a mass grave or any human remains. They did, however, reveal evidence of one historic road (oriented north-south) stratigraphically overlying another such road (see Figure 4.14) and a deeply-buried swampy area with very dark soil, numerous late 19th to early 20th-century artifacts, fragments of wood, and some non-human bone (Appendix D). The swampy area extends further to the south and was not fully explored during the July excavations due to challenges created by its depth and location just above the water table (Figure 3.15). This feature corresponds to an anomaly that was detected by the gradiometer (Figure 3.13; see also Hammerstedt and Regnier 2019: Figure 27).

The open space between the backhoe trenches A-C and the nearest marked graves to the east and south were tested with twelve deep auger samples (Figure 3.12 and 3.16). These were excavated to assess the extent to which the soils were consistent (or different) compared to those observed in the trench profiles. The auger samples, when compared with the trench sediment profiles, can provide direct evidence regarding disturbances in the surrounding landform sediments and possible evidence for a mass grave location. No such evidence was observed in these core samples.

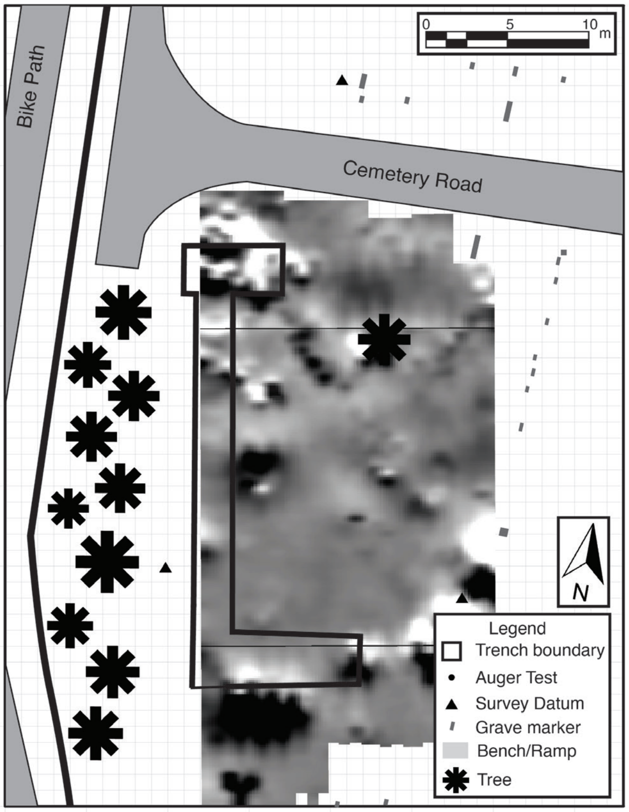


Figure 3.13. *Location of backhoe excavation trenches A-C in relation to the geophysical anomalies identified with the gradiometer in the Sexton Area.*

Although no burials were encountered in the Sexton Area, the excavated trenches and soil core samples yielded data regarding the natural landscape and substantial cultural alterations that had occurred over time, which is pertinent to the search for massacre victims elsewhere in Oaklawn Cemetery. These data and interpretations are presented in Chapter 4 of this volume.

Efforts to Locate a Mass Grave in the Clyde Eddy Area

As discussed in Chapter 2, Clyde Eddy observed a large trench near the southern edge of Oaklawn Cemetery along what was then called 10th Street (11th Street today). He estimated the trench to measure about 20 feet long, eight-ten feet wide, and at least six feet deep. He also observed perhaps a half dozen wooden crates that were larger than a standard coffin (Ellsworth, this volume). One of the crates may have been a piano box. According

Figure 3.14. *Drone image of the backhoe excavation in the Sextons Area; not shown here is Trench C (Image courtesy of the City of Tulsa).*

to his interview with Ellsworth and Richard Warner, Eddy looked inside two of the crates, one of which held the remains of three black individuals and another that held four. To our knowledge, Eddy did not observe the actual burial process.

We can postulate two scenarios based on the information provided. In one scenario, the trench contains evidence of perhaps six wooden containers that each holds the skeletal remains of multiple decedents. The containers themselves would be largely deteriorated, but wood fragments and coffin hardware would be detectable. Depending on the extent to which remains shifted during the burial process, preservation, and post-depositional activity, the skeletal remains may be distinguishable and articulated or they may be comingled.

Figure 3.15. *Drone image of Trench C showing water rising in the base of the trench, which is below the water table (Image courtesy of the City of Tulsa).*

A second scenario must be considered as a viable possibility. Lowering a single coffin into a grave shaft—especially one that is six feet deep—can be difficult. Imagine trying to lower or otherwise position a crate that is being used as a makeshift coffin with no handles that contains three or four individuals. The weight of the crate and those individuals—likely at least 500 pounds—coupled with the large size of the crate would be unwieldy at best. Given Eddy's account of having lifted the lids off two of the crates, it is also possible that the men he observed next to the trench never intended to bury the decedents in the crates. Rather, it may be that the crates were just used to transport the remains to the cemetery. As Mr. Eddy did not actually observe the burial process, it is possible that the bodies were removed from the crates prior to being placed in the trench. As Mr. Eddy did not apparently observe individual-sized containers, it seems unlikely that the remains would have been transferred to singular coffins prior to burial. As such, the bodies may have been placed directly into the grave shaft, similar to the example presented in Figure 3.8. Without the additional protection of a coffin or casket, decomposition would be rapid and it is less likely that any clothing or perishable items would be recovered archaeologically. The extent to which the remains would be comingled or articulated depends on how many individuals were included in the mass grave, how they were positioned (e.g., side-by-side, haphazardly laying on one another, stacked, etc.), and impacts from post-depositional processes.

Figure 3.16. *View of the mechanical auger (Image courtesy of the City of Tulsa).*

Between July 1998 and November 1999, Witten and Brooks surveyed an area based on Eddy's description using a suite of geophysical equipment, including 1) a Geometrics 858 cesium magnetometer; 2) electromagnetic induction (EMI) with GEM-2; and 3) ground penetrating radar (GPR) in conjunction with 200, 250, and 500 MHz antenna. They identified an anomaly (5 meters square) that they interpreted as a "trench-like feature" considered worthy of further investigation (Brooks and Witten 2001:141). Unfortunately, Brooks and Witten did not include a datum in their published data. As a result, it is difficult to know precisely where their survey was conducted.

As part of the most recently reopened investigation, OAS conducted two rounds of new geophysical survey to search for the anomaly identified by Witten and Brooks in the Clyde Eddy Area using more modern equipment, including: 1) GPR (GSSI Utility Scan with 350 MHz antenna; data processed using RADAN 7); and 2) electrical resistivity (Geoscan Research RM15 with an MPX15 multiplexer in a PA20 multi-probe array) (Hammerstedt and Regnier 2019:2-4, 14). The first survey, completed in 2019 did not yield comparable results to those obtained by the earlier geophysical investigation. With the assistance of members of the Public Oversight Committee, Hammerstedt completed a second geophysical survey in July 2020 (Appendix B). This effort resulted in the identification of an anomaly thought to approximate that identified in the 1999 survey—specifically, the one interpreted as a possible mass grave. The October 2020 fieldwork targeted this anomaly for ground-truthing.

Multiple core and auger samples were extracted in and around the anomaly (Figure 3.17) to examine the soil stratigraphy and the extent to which disturbed fill—perhaps akin to that which

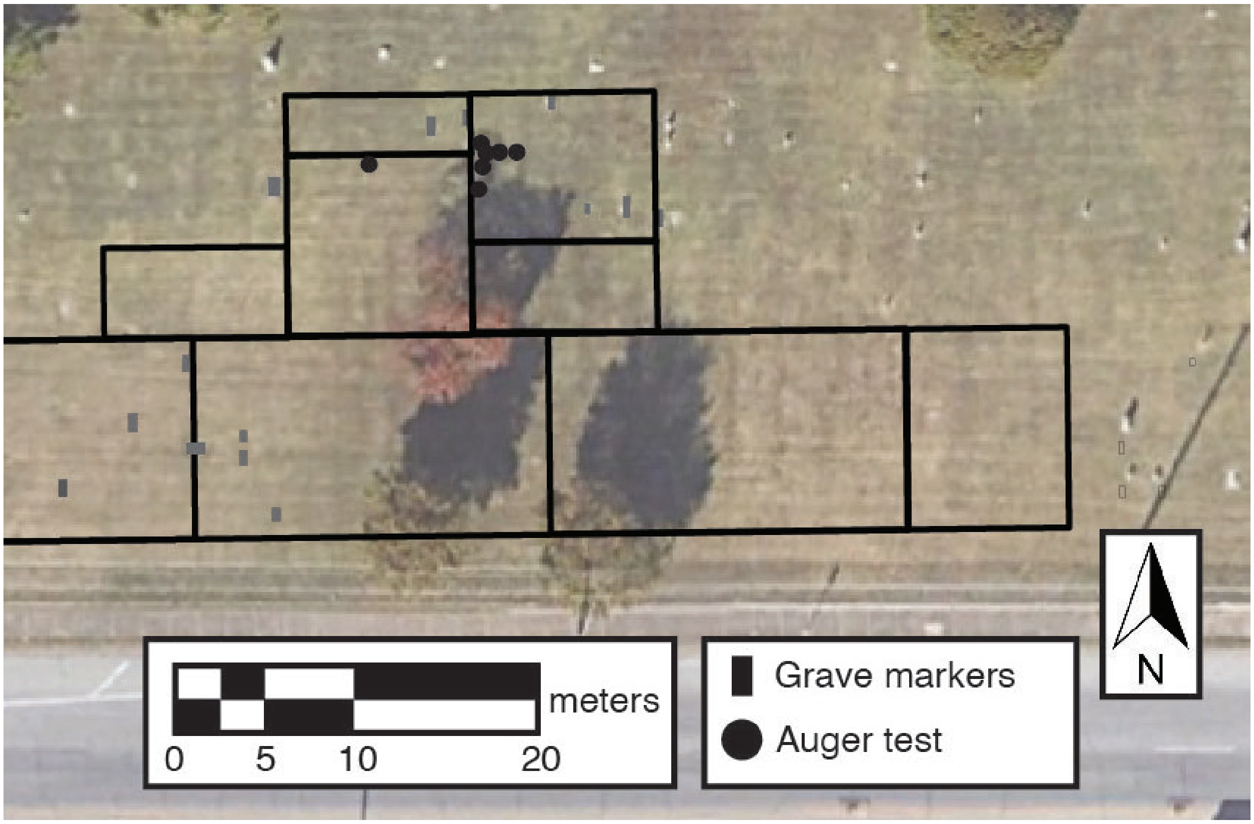


Figure 3.17. Mapped position of series of augers excavated in the vicinity of a targeted geophysical anomaly in the Clyde Eddy Area.

we would expect to be present over buried coffins in a mass grave—was indeed present. These soil samples revealed largely intact, natural stratigraphy that was not indicative of a grave shaft feature. No burials were detected. However, as with the Sexton Area, the results of this phase of the fieldwork are germane to continuing investigations in the Clyde Eddy area and elsewhere in Oaklawn Cemetery and are discussed in greater detail in Chapter 4.

Efforts to Identify Graves of Massacre Victims in the Original 18 Area

In his preliminary report of the confirmed deaths for the 2001 Tulsa Race Riot Commission Report, Dr. Clyde Snow made several observations from the information available at the time. Of the 39 documented victims, all were identified as male. Twenty-six individuals were identified as Black, one of which was an infant. Twenty-one of the Black victims were purportedly buried in Oaklawn Cemetery at the County's expense; none of these individuals was embalmed and all were buried in plain wood coffins. Five of those individuals were gunshot victims who died at Morningside Hospital on June 1 and June 2, and were buried by Mowbray Mortuary. Their death certificates were signed by physician J. F. Capps, M.D. (Snow 2001:118). Three of these five victims were identified by name: Reuben Everett; George Jeffery; and William Turner. The other two were listed as "John Doe."

The remaining 16 individuals reportedly buried at Oaklawn Cemetery consisted of victims who were "found at the scene and taken to Stanley-McCune (funeral home)." The death certificates for these victims were signed by the County Attorney and included 15 adult males and one stillborn infant. Nine victims were identified by name: Greg Alexander; Henry Walker; Ed Adams; Joe Miller; Sam Ree; (?) Lewis; Curley Walker; Edward G. Howard; Ed (Willie) Lockard. The remaining six adults and the infant were unidentified. Four of the unidentified adults were badly burned. Eleven of the adults buried by Stanley-McCune were gunshot victims (Snow 2001:118).

Based on the available records, Snow rendered some significant findings with implications for the *expected patterns* of burial placement that could potentially be discernable through archaeological investigation. He noted the following (Snow 2001:118-119):

> "An important feature of the Stanley-McCune records was a notation indicating the "grave number" of each burial. These numbers form a single sequence from 1 to 19, except for graves 15, 16 and 17. It is possible that these graves were filled by three of the Mowbray. Unfortunately, grave numbers were not given in the Mowbray records.
>
> …should archaeological exploration of the area go forward, the excavators should encounter them [the victims]. Assuming, as the records indicate, that they were buried in separate graves in the order indicated by the Stanley-McCune grave numbers, they should be encountered in an orderly row(s). If so, the available information that we have on them should be valuable in obtaining tentative identifications. For example, the skeletons in graves 7, 9, 13, and 18 should show some signs of fire exposure. If so, they should provide tentative leads to the non-burned skeletons in adjacent graves."

From Snow's preliminary assessment, we had reason to believe that the black male victims buried in Oaklawn *should be grouped in a row or rows of adjacent individual graves*. Further, the data provided on the Oaklawn Grave Numbers for those buried by the Stanley-McCune funeral home provided clues as to the potential spatial distribution of the decedents (Figure 3.18).

This model guided the test excavations in October 2020. Having completed a geophysical survey in the southwestern portion of Oaklawn Cemetery (Hammerstedt and Regnier 2019), several anomalies were found that might represent individual unmarked graves. Upon targeted excavation, if one potential victim among the unmarked, undocumented graves was found, then additional victims would likely be encountered on either side in a manner consistent with the model presented in Figure 3.18—a hypothesis that could be tested by expanding the excavation area. What the actual excavations revealed was quite different and far more complex.

The testing strategy focused first on a single geophysical anomaly--#6 (Figures 3.19 - 3.21). Excavations revealed the presence of an adult individual burial—likely a female based on in-field assessment of the cranial features. She was interred in a wooden coffin oriented with her head to the west and feet to the east. A metal coffin plate with the words "At Rest" was uncovered in association with this burial (Figure 3.22). While some of the skeletal elements were inadvertently removed during backhoe excavation, efforts were made to leave as many in place as possible.

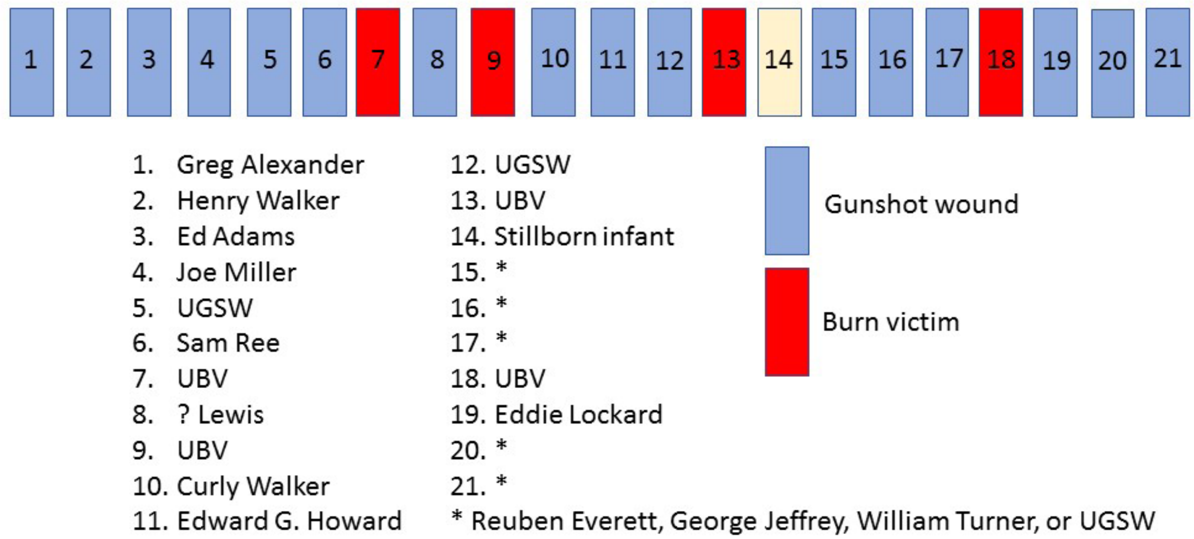


Figure 3.18. *Hypothetical alignment of individual graves for 21 Black massacre victims based on Clyde Snow's assessment (Snow 2001:118-119, Table 13). This model presumes that Burials 1-14 and 18-19 were interred by the Stanley-McCune Funeral Home and Burials 15-17 and 20-21 were buried by Mowbray Mortuary. (UGSW = Unidentified gunshot wound; UBV = Unidentified burn victim)*

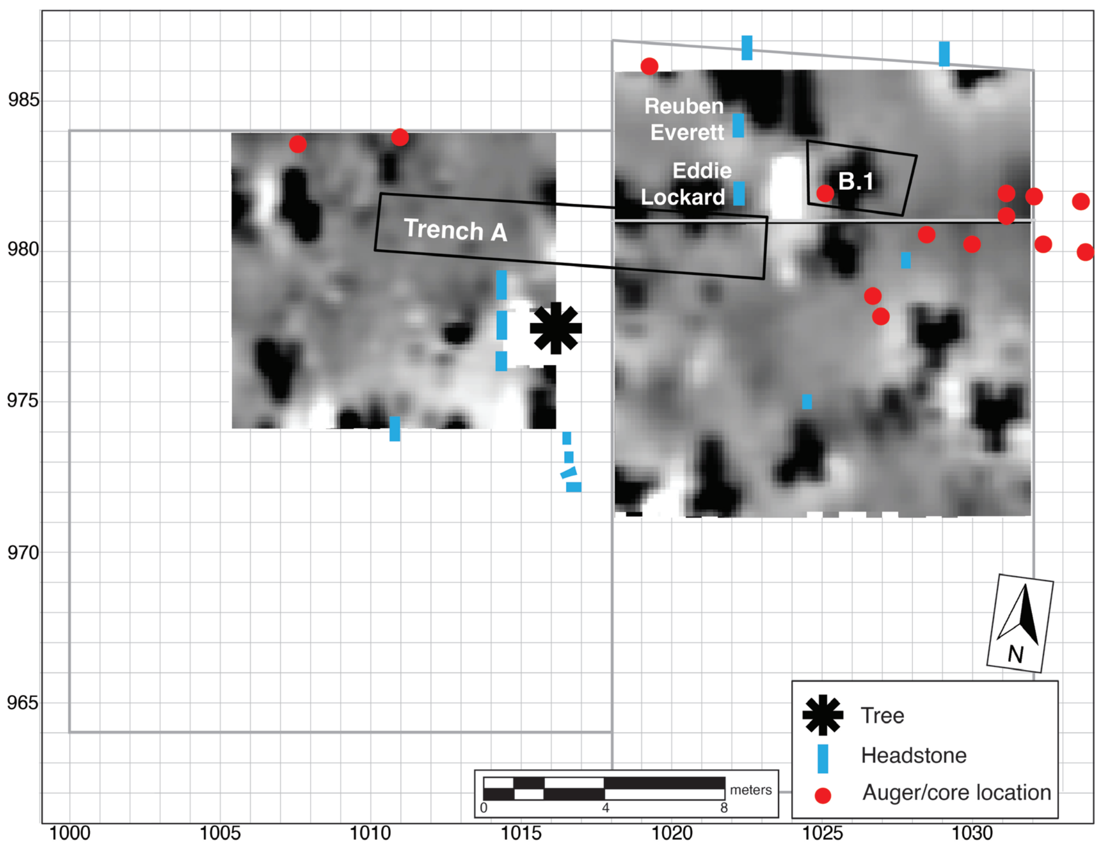


Figure 3.19. *Distribution of the soil cores/augers and October 2020 excavation blocks overlain on the gradiometer survey results in the Original 18 Area. One auger sample not represented on this image was excavated horizontally to the north from the Burial 1 excavation block.*

Figure 3.20. *The headstone of Eddie Lockard—victim of the 1921 Tulsa Race Massacre—lies adjacent to the area where researchers conducted test excavations in October 2020 to search for other victims. Note the yellow flags, which mark the locations of geophysical anomalies targeted for testing (Image courtesy of the City of Tulsa).*

Figure 3.21. *Members of the excavation team and Public Oversight Committee monitor as the backhoe excavation begins in the Original 18 Area of Oaklawn Cemetery (Image courtesy of the City of Tulsa).*

Figure 3.22. *Metal coffin plate from Burial #1; it reads "At Rest" (Image courtesy of the City of Tulsa).*

The skeletal elements unaffected by the backhoe excavation were fragile. Knowing the state of preservation guided the excavations to search for other burials as part of this testing phase. To safeguard the remains for future analysis, we limited exposure of skeletal remains as much as possible. We excavated only as deep as necessary to reveal the coffin, leaving the bones relatively untouched until the actual exhumation process could take place.

No well-defined grave shaft was apparent during excavation of the fill (dirt) overlying Burial #1 as would have been expected for an individual interment. However, the overburden was heavily disturbed as evidenced by mixed soils. The area of disturbed fill exposed in the backhoe trench was greater than the space needed to inter a single individual. The size difference suggested the possibility that this grave might include more than one individual.

To assess the spatial extent of the disturbed soil in the grave shaft fill area, we conducted a series of mechanical and hand-excavated augers to the west, north, south, and east of Burial #1 (see Figure 3.19). From these samples, the horizontal extent of the disturbed soil was delineated—an area that measured approximately 20 m (65.6 ft) east-west by 7.25 m (23.8 ft) north-south. The depth at which the disturbed fill terminated is approximately 1.75 m (5.7 ft) below the modern ground surface. This was a relatively large area of disturbed overburden that contained at least one known burial that was not clearly emplaced within an individual grave shaft. If this overall area of consistently disturbed soil contained multiple burials that were similarly devoid of individual grave shafts, then it would strongly suggest the possibility of a common—or mass—grave, Based on this information and recognizing the potential for a mass grave, our test excavation strategy was modified. We cut Backhoe Trench A to the west and slightly south of Burial #1 (Figures 3.19 and 3.23). This area encompassed two poorly defined geophysical anomalies and core samples that displayed evidence of disturbed soil consistent with that observed over Burial #1. This trench measured approximately 12.4 m (40.7 ft) east-west by 1.6 m (5.3 ft.) north-south and was excavated to depths ranging from 1.1 m (3.6 ft) to 1.64 m (5.4 ft) below ground surface. At least 11 probable burials were defined in this trench based on the outlines of wooden coffins, casket materials (e.g., handles, wood fragments, possible face plate glass, etc.), some inadvertently exposed human remains, and nails at locations where they would be expected at coffin corners. An additional three possible burials were suggested based on observations of the soil, the presence of wood, and—in one case—a metal coffin handle.

In addition to the burials, possible "steps" were identified in the west end of Backhoe Trench A in the Original 18 Area. We believed these steps were cut into the natural soil to provide access into and out of the trench. This is the type of feature that may be implemented when its value to improve the efficiency of the burial process is perceived to be so beneficial as to warrant the effort to create them.

In sum, test excavations in the southwestern portion of Section 20 were initiated with the expectation of discovering at least one massacre victim, which would then require us to expand

Figure 3.23. *Members of the Public Oversight Committee (on the right) observe as researchers from the Physical Investigation Committee discuss the discovery of multiple coffins in Backhoe Trench A in the Original 18 Area of Oaklawn Cemetery (view facing west) (Image courtesy of the City of Tulsa).*

excavations on either side to expose a row (or rows) of other individually-buried victims consistent with Snow's assessment of the funeral home records (see Figure 3.18), which is similar to the modern example represented in Figure 3.6. With the initial test excavations, the physical evidence revealed no individual grave shafts and was more consistent with the model of a mass burial similar to the one in Figures 3.4 or 3.5. It is important to note that Snow's model and the trench-style mass grave model both expect victims to be buried in close proximity to one another, although the spatial layout of the decedents and the archaeological signatures of each model are quite different.

To confirm the initial interpretations from the 2020 test excavations, we proposed expanded excavations, and exhumation of the individuals buried in this area. We further proposed specialized analyses of the exhumed remains to determine the extent to which they were victims of trauma.

Summary

Historical records, key informant interviews, and geophysical survey yielded information that pointed to several locations within Oaklawn Cemetery that warranted further investigation by virtue of the potential for the discovery of the remains of victims of the 1921 Tulsa Race Massacre. The specific burial activities thought to possibly exist in each location guided plans for test excavations designed to recover relevant physical indicators—if present. No burials were detected in the Sexton Area or the Clyde Eddy Area. Several graves—the vast majority of which were unmarked—were uncovered in the Original 18 Area. The results of initial testing, subsequent expanded excavations, and specialized analyses are presented in the following chapters.

CHAPTER 4

LANDFORM HISTORY OF OAKLAWN CEMETERY

Debra Green, Ph.D., Leland Bement, Ph.D., and Greg Maggard, Ph.D.

Introduction

This chapter presents the results of the analysis and interpretation of the stratigraphic profiles collected and documented during the excavation of trenches and cores/augers at Oaklawn cemetery between 2020 and 2021. In brief, these results indicate that specific pedogenic, taphonomic, and anthropogenic processes in the southwestern portions of the cemetery have significantly altered the original landform. Sustained episodes of intentional infilling have filled in and deeply buried two seasonal streams that once flowed along this portion of the landform, as well as raised the surface elevation of the landform between 4 and 13 feet. These combined and interrelated processes resulted in the homogenization of sediments in Trench A and made interpretations of sediment changes and spatial relationships extremely challenging. In spite of those challenges, the stratigraphic investigations provide invaluable insights into the evolution of the landform that comprises these portions of Oaklawn cemetery.

The chapter is divided into four sections. The first section provides the physical setting and general history of the landform of Oaklawn Cemetery. The second section discusses the stratigraphic interpretation of the investigations in the Sexton's area conducted in 2020. The third section presents and discusses the stratigraphic results and interpretations from the 2020 and 2021 excavations in the Clyde Eddy and Original 18 sections of the cemetery. The final section summarizes the results and significant findings of the geoarchaeological investigations at Oaklawn Cemetery.

Setting of the Oaklawn Cemetery

Environmental Setting

To understand the stratigraphy exposed in the project area at Oaklawn, a brief history of the geology, geomorphology and soils is essential. Oaklawn Cemetery lies within the Cherokee Platform geologic province, a stable interior portion of Oklahoma between two major tectonic provinces, the Nemaha Uplift to the west and the Ozark Uplift to the east (Johnson 2008). The Cherokee Platform consists of several geomorphic or physiographic provinces that are characterized by specific topographic relief, geologic subsurface rock formations, and environmental variables. The Oaklawn Cemetery is situated on the western edge of the Claremore Cuesta Plains Physiographic Province. Shaped by differential erosion and weathering process, the Claremore Cuesta Plains are west-dipping Pennsylvania-age sandstone and limestone landforms surrounded by broad flat shale plains (Curtis et al. 2008; Stone et al. 1972).

The cemetery lies at edge between two major landforms dissected by the Arkansas River and its tributaries. On the east, the Pennsylvania-age Seminole Formation (Psm) bedrock strath terrace is comprised of soft shale interbedded with hard sandstone and limestone sedimentary rock. To the west is a remnant Pleistocene-age fluvial terrace (Qtgo) of the Arkansas River consisting of unconsolidated clay, silt, and sand, with few limestone and dolomite pebble and cobble size gravel inclusions (Stanley 2013). The more weather resistant sandstones and limestones have created a rugged topography in the western portion of Tulsa compared to the softer, more easily eroded shales that underlie central and eastern Tulsa. As a result, the topography surrounding the project area consists of low, undulating hills incised by seasonal streams.

The province is dissected by the Arkansas River and its tributaries. The Arkansas River is the dominant surficial force in the area. The river valley is wider and shallower in central Tulsa County than it is in the western portion of the county. This difference is due to the structure of the bedrock as described above. The western segment of the channel is deeply incised into the erosion resistant sandstones and limestones creating narrow, deep valley bottoms (Stone et al. 1972).

Soils

Urban development has significantly disturbed the natural soils in the Tulsa area. Fortunately, the USDA SSURGO soil data does document the original soils surrounding Oaklawn, so we have a good comparative example of the character of the soil mantle across the Oaklawn Cemetery landform prior to extensive development (Carter and Gregory 2009; Soil Survey Staff 1999). The western portion of the cemetery is mapped as the Kamie-Lawton-Porum series. The Kamie series are very deep, well drained, loamy to sandy alluvial soils that develop on gently sloping paleoterraces of the Arkansas River. These soils are classified as Alfisols due to their well-developed argillic (clay) subsurface horizon formation in older fluvial sediments. The higher elevated eastern section of the cemetery is mapped as the Dennis-Bates-Taloka-Parsons series. The Dennis series is characterized as poorly drained, silty to clayey residuum weathered from the shale bedrock on interfluves and hillslope landforms. Dennis soils are classified as Mollisols, commonly referred to as fertile grassland soils. Mollisols have a deep, organic rich (dark) surface A horizon (mollic epipedon).

Historical Geology

Historic topographic maps were examined to better understand landscape structure and change through time. Map contour lines represent elevation differences across the landscape and are obscured on the modern USGS 7.5' minute quadrangle in the Oaklawn Cemetery area because of urban sprawl. However, historic maps, while not as detailed, do offer some topographic past indicators, such as locations of perennial streams, wetlands, springs, tree lines, historic towns and farmsteads.

The earliest historic map of the Tulsa area is the Atlas to Accompany the Official Records of the Union and Confederate Armies 1861-1865 from the David Rumsey Map Collection website (Accessed July 2020). Designated as Cherokee Country, the general location of Oaklawn is between two unnamed streams that drain into the Arkansas (Figure 4.1). The two streams are

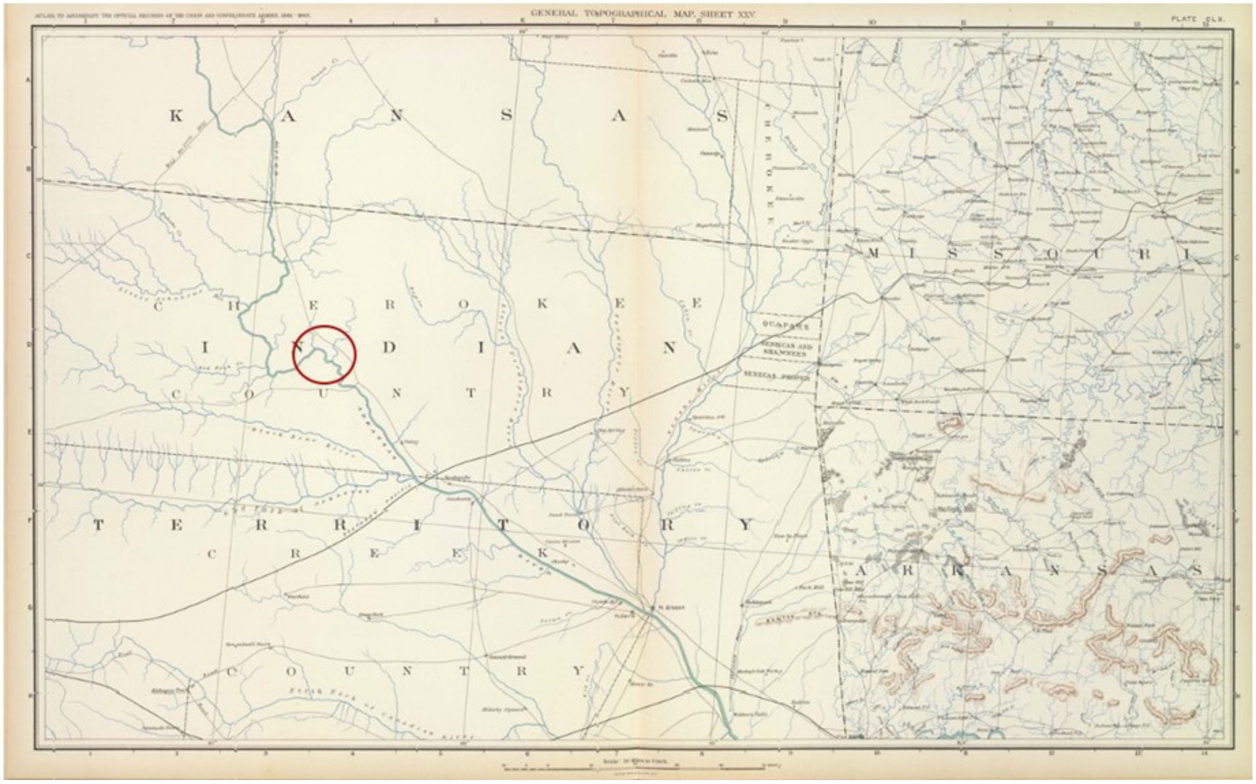


Figure 4.1. *Atlas to Accompany the Official Records of the Union and Confederate Armies 1861-1865 from the David Rumsey Map Collection.*

likely the Harlow and Joe or Haikey Creeks. This early map lacks landform elevation contours and any of the lower stream order tributaries of the Arkansas River. The 1897 Claremore quadrangle map at 1:125,000 provides slightly more topographic detail (Figure 4.2). Contours are drawn at 50-foot intervals and sections, townships, and ranges are established. A 2nd order stream is clearly mapped north and west of Oaklawn as it meandered in a northeast to southwest trajectory, eventually draining into the Arkansas River. A Muscogee Territory map also depicts the Oaklawn area at the junction of two creeks surrounded by trees (Figure 4.3). The 1914 topographic map illustrates the same contour features, but the cemetery is demarcated and surrounded by Tulsa urban development. However, the unnamed intermittent creek is still clearly shown to meander along the north and west edges of Oaklawn (Figure 4.4).

A 1918 drawing of an aerial view of Tulsa illustrates the general sloping topography and approximate location of Oaklawn (Figure 4.5). A line of trees is visible as is the drainage that acts as the western boundary of the cemetery. The raised Frisco Railroad parallels the drainage before it curves west to cross the Arkansas. At the far southwest end of the cemetery, the tracks appear to be elevated enough to allow trolley car travel on 10th Street to cross underneath it (Figure 4.6). The tracks are elevated across the entire length of the undeveloped area suggesting the likely swampy marsh nature of the drainage. You can see the junction of the Arkansas River with the unnamed tributary (v-shaped incised landform) near the railroad bridge crossing (Figure 4.7).

Although a century of residential and commercial development has significantly modified the areas surrounding and within the cemetery, the historic map data, and general elevation profile

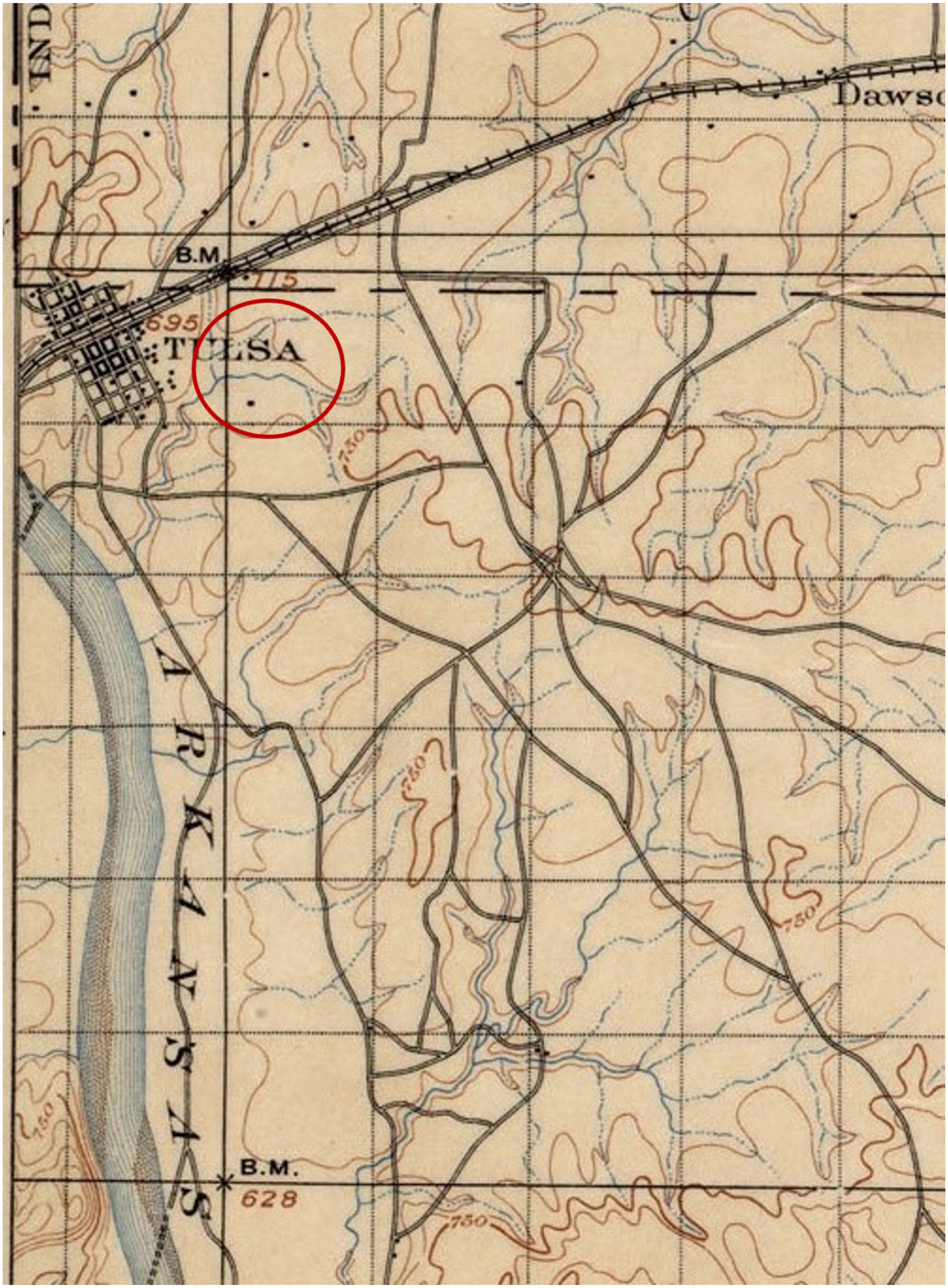


Figure 4.2. *Location of Oaklawn Cemetery on the 1897 Claremore quadrangle map.*

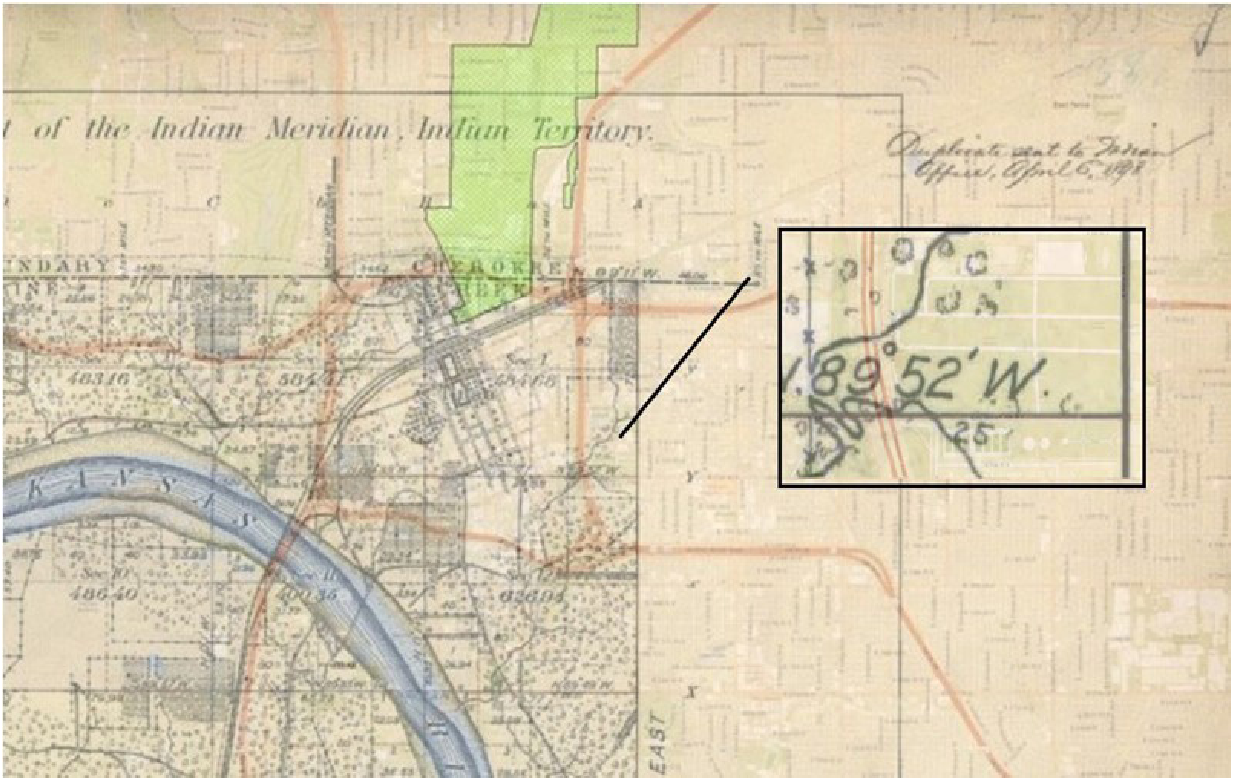


Figure 4.3. *Location of Oaklawn Cemetery on the Cherokee Indian Territory Map.*

<Figure 4.4. *Location of Oaklawn Cemetery on the 1914 Claremore quadrangle map.*

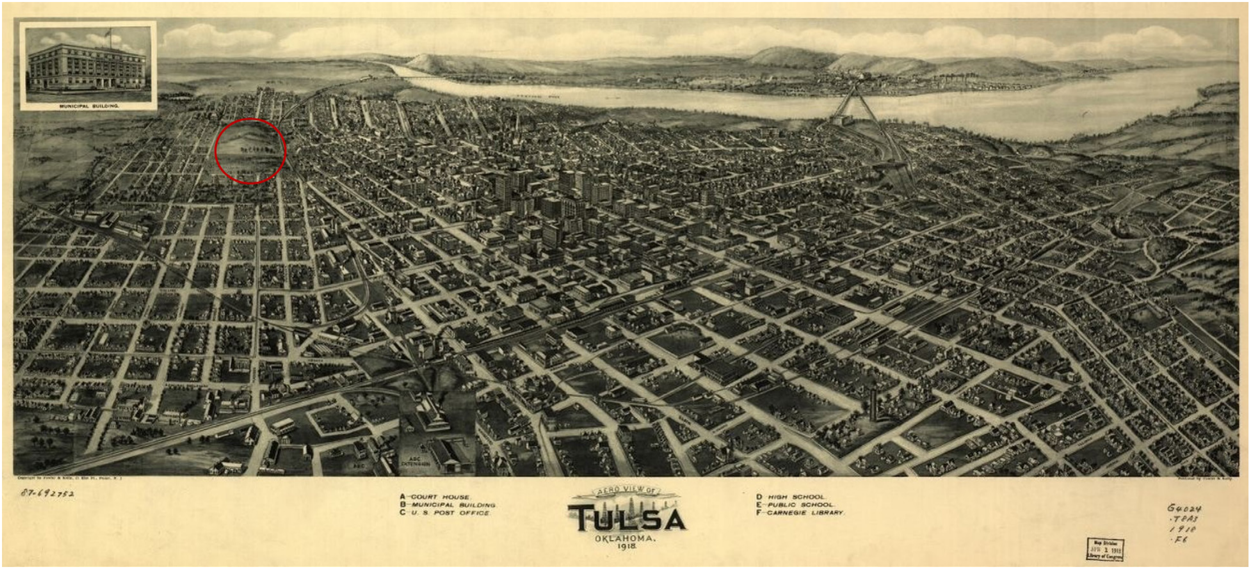


Figure 4.5. *1918 Illustration of an Aerial Photograph of Tulsa.*

Figure 4.6. *1918 aerial photo drawing of the Frisco Railroad bridge crossing with 10th Street (red arrow).*

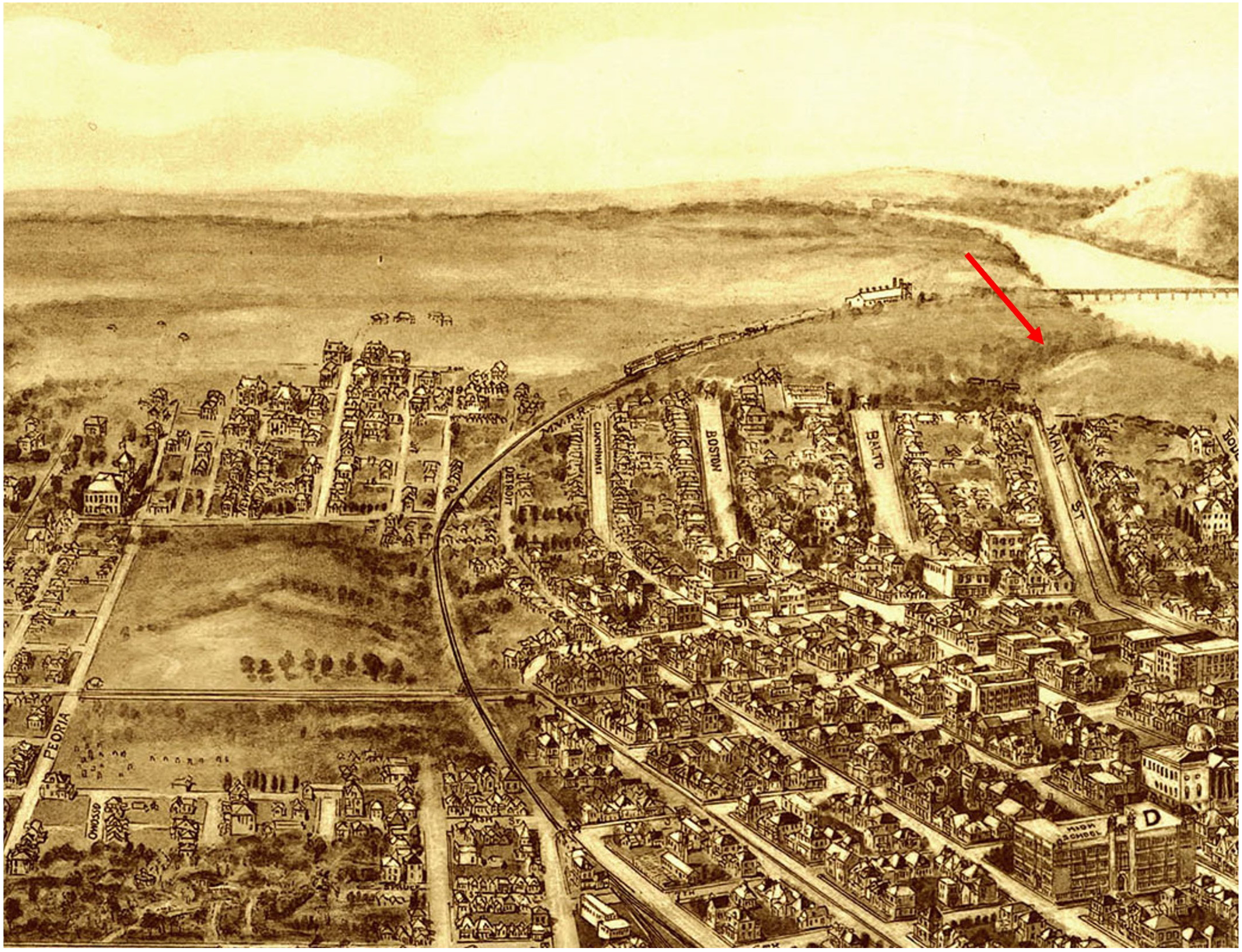


Figure 4.7. *1918 aerial photo drawing showing mouth of the unnamed tributary that flows along the west edge of Oaklawn Cemetery.*

of the landform both provide solid evidence that an unnamed stream once meandered along western and southern edges of the cemetery landform. The area where the stream meandered would have been lower (and seasonally wetter) than the surrounding landform. Using a Google Earth app, Figure 4.8 illustrates the gradual slope, from east to west of the cemetery landform. The lowest elevation point (red arrow) represents the bottom of the relic creek/marshy pond bottom. How much lower in elevation the area of the stream was relative to other portions of the cemetery landform and the post-depositional effects caused by continued movement of water through the cemetery sediments were not known until the recent excavations.

The 1917 Oaklawn Cemetery plat map of the block locations and the 1944 and 1958 aerial photographs offer glimpses of landscape change within the boundaries of the cemetery (Figures 4.9-4.12). In particular, the plat map illustrates an east-west road, south of Sections 13-15 (Figures 4.9 & 4.10). The road appears to still be intact in the 1944 aerial photograph (Figure 4.11) but is largely missing and covered in grass in the 1958 aerial (Figure 4.12).

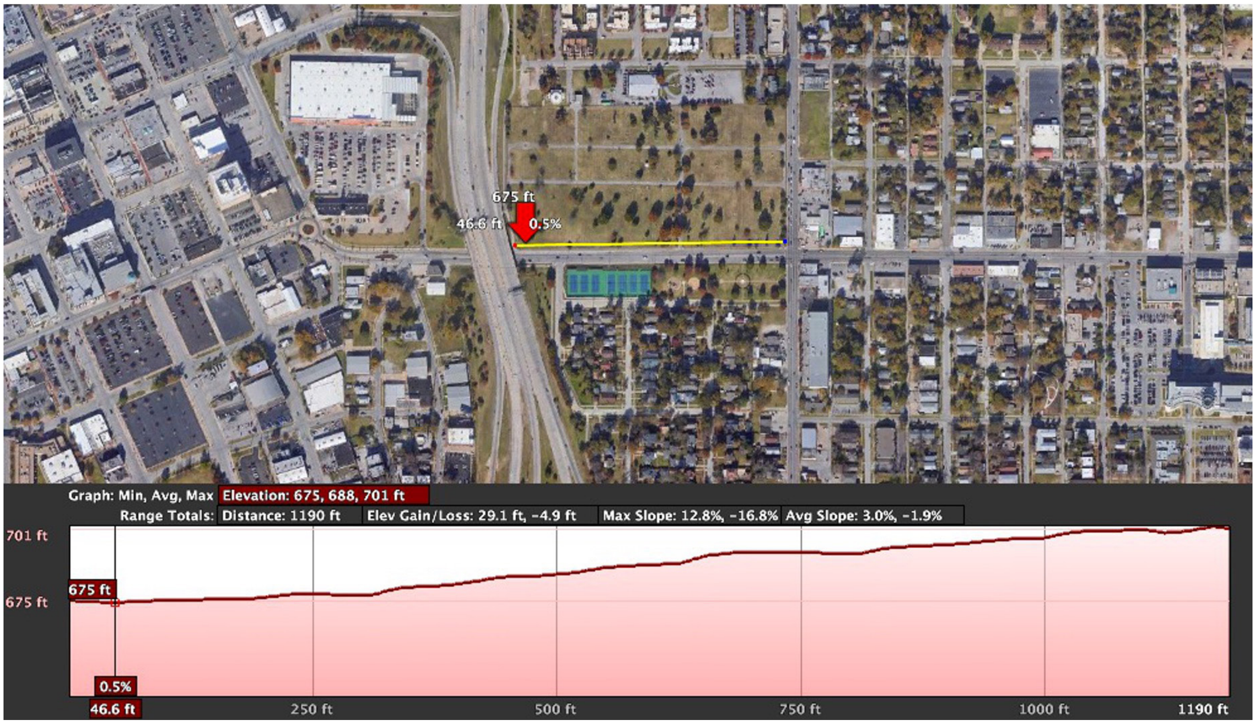
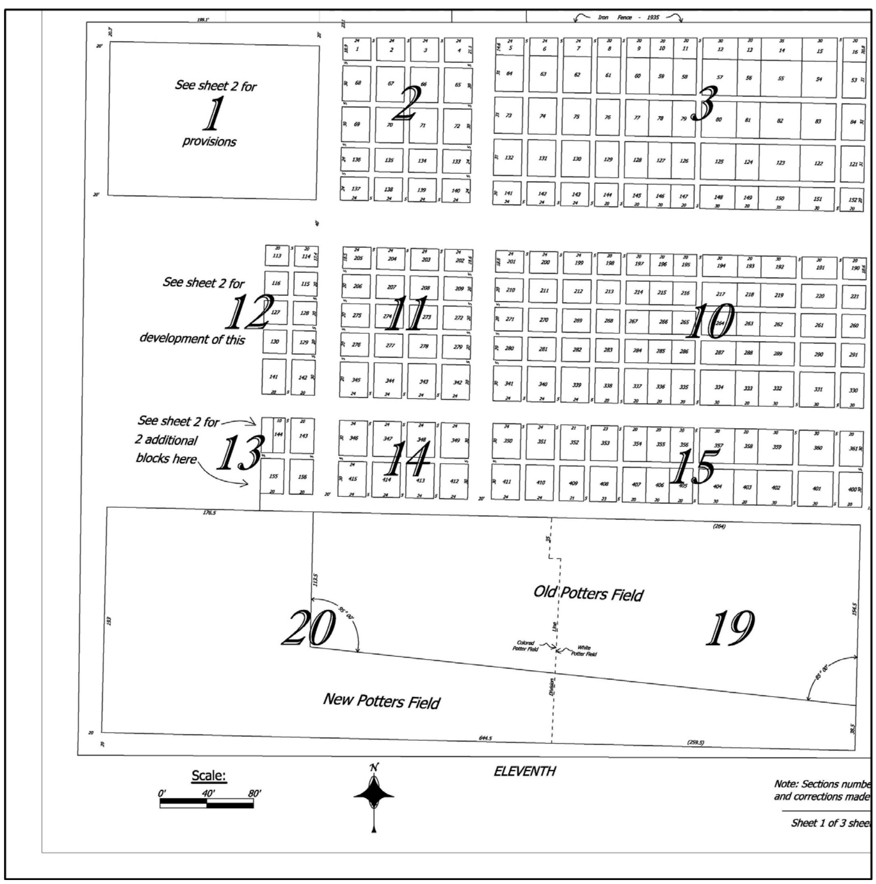


Figure 4.8. *Elevation profile representing east-west across Oaklawn Cemetery. Arrow points to the elevation near the excavation trenches.*



>Figure 4.9. *Western portion of the 1917 Oaklawn Cemetery plat map illustrating the burial blocks.*

<Figure 4.10. *Detailed segment of the 1917 Oaklawn Cemetery plat map illustrating the road sections in Sections 12 and 13 in relation to the 2020 trench excavations in the Sexton Area (map segment image courtesy of Betsy Warner).*

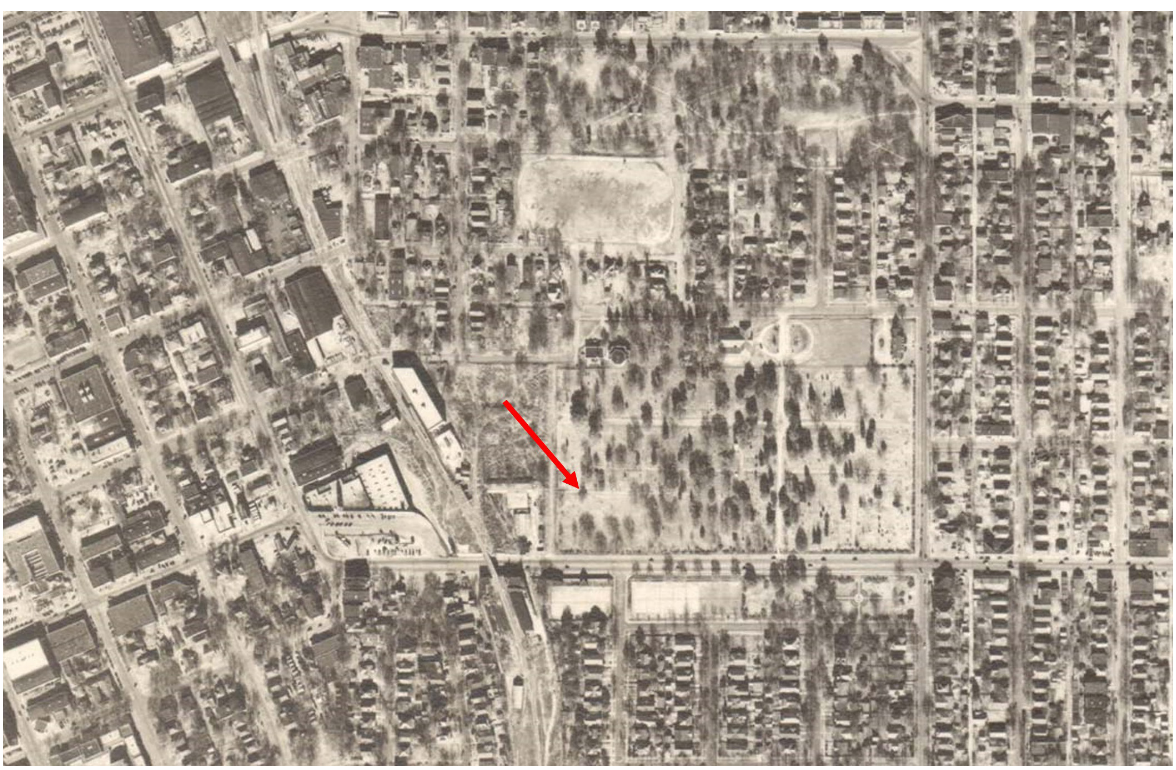


Figure 4.11. *1944 Aerial photograph showing the road south of Section 13 is still present.*

Figure 4.12. *1958 Aerial photograph showing the road south of Section 13 is no longer present.*

Stratigraphy

Stratigraphy is the science of describing different sediment deposits (layers) across space and succession in time. Historically, archaeologists used stratigraphy to understand the temporal relationship between artifacts and features within stratified deposits. Following the Law of Superposition, artifacts found at the bottom of a sequence of "layers" are older than artifacts observed in deposits at the top. As a fundamental concept in archaeology, it allows the archaeologist to relatively date the sequence of superimposed or stacked accumulation of different types of artifacts and/or features at a site. With the adoption of the geoscience techniques (Geoarchaeology or Archaeological Geology) archaeologists have recognized the importance of description, identification, and classification of different deposits and then correlating them across space. This requires investigating surrounding areas and establishing a relationship with those observed in the study area. With this brief history of archaeological stratigraphy, the stratigraphic profiles of Trenches A, B, & C and the mechanical augers are discussed below, followed by our interpretations of the depositional history observed, along with descriptions of the deposits. Discussion of the deposits will start from the base of the trenches and augers and work up towards the surface—from the oldest to the youngest deposits.

Investigation of the Sexton Area

Trenches A, B, and C

The deposits observed in the profiles of the three trenches are uniform. The base of Trench A went to a depth of slightly over 2 meters (6.6 feet). Whereas Trench B and the west end of Trench C were excavated to a depth of approximately 5-5.5 m (17-18 ft) below surface (bs). The basal deposit is the parent material (C horizon) and is characterized as light olive yellow (Munsell color 2.5Y 4/6) coarse grained silt with few pebble-size sub-angular gravel inclusions. The inclusions are at the abrupt contact with the overlying partially disintegrated (weathered) portion of the bedrock (2Cr horizon). Identifying a Cr horizon is important because it affects the movement of water and root penetration. This has implications for the presence of the water table we encountered in the Sexton portion of Oaklawn.

The weathered bedrock gives way to a layer (Cb horizon) of unconsolidated mottled yellowish brown (10YR 5/8) silt to silty clay that has not been affected by the influence of surface processes (e.g. climate, plants, animals). In Trench C, it appears as a pale green (Gley 1 8/2) to a light greenish gray (Gley 2 8/1) silty clay. Its contact is transitional with the overlying very dark grayish brown (2.5Y 3/2) to black (2.5Y 2.5/1) clay (Ab horizon). This dark organic-rich buried land surface was subject to the most direct environmental surface processes and likely represents the pre-1914 land surface. The buried soil contains a sequence of thin dark and light planar laminated silty sediments. This sequence is approximately 10 cm thick in Trench A but is over 30-40 cm thick in the south end of Trench B and up to 1 m thick in Trench C. Historic artifacts and wood debris dating from 1890-1915 (see Appendix D) were observed throughout the Ab horizon.

This land surface is buried by almost 3 m (9.5 ft) of discreet episodes of intentional historic infilling (Figure 4.13). The layers of historic fill consist of a varied sequence of alternating dark reddish brown (5YR 3/3), olive brown (2.5Y 4/4) and dark grayish brown (10YR 3/2) extremely compact clays separated by abrupt, wavy to irregular contact boundaries. These previously unknown fill layers contained (frequently in high densities) historic-era rubble, construction debris, and other artifacts that were clearly hauled in to Oaklawn and dumped as part of the fill for the purpose of raising the elevation of the lower portions of the landform.

Discontinuous sections of two roads, approximately 8-10 m in length were observed in the east wall of Trench B (Figure 4.14). The roads are oriented north-south and follow most of the length of Trench B. The older road segment (ca. 1917) was observed at 2 m (6.6 ft) below surface and the younger segment was encountered at approximately 1 m (3.3) below surface. Both roadbeds consisted of fragments of asphalt and bitumen. The roads and the underlying compact clay fill end approximately 20 m from the north edge of Trench A where fragments of concrete curbing were encountered, suggesting both roads curved east towards the center of the cemetery. These data appear to be confirmed by the 1917 plat maps of the cemetery blocks. In the far south segment of Trench B, the compact clay road fill gives way to softer unconsolidated silty sediments that created

Figure 4.13. *Multi-color fill events exposed in the Sexton Area. The Pre-1914 buried land surface is exposed in a small square section at the bottom of the deepest excavation (fore-ground center).*

unsafe trench wall collapse (Figure 4.15) during backhoe excavation of Trench C and Feature 3 (discussed below).

Mantling the historic fill is a 60-centimeters (cm) thick homogeneous yellowish red (5YR 5/8) silt under the modern dark brown (7.5YR 3/2) surface soil (A horizon). Fragmented glass was present within the modern surface soil.

Trench C

Trench C is an expanded backhoe excavation at the southern end of Trench B at a distance of 25-30 m from the northern end of Trench B. A thick stratum of planar laminated sediments indicates pulses of sediment following rainstorms being deposited into standing water such as a pond (Figure 4.16). The historic bottles and other debris were also deposited into the standing water, thus suggesting the deposits, pond, and debris are contemporaneous with

Figure 4.14. *View of Trench B east wall showing fill and the road segments (black lines).*

Figure 4.15. *Wall collapse in the south end of Trench B during backhoe excavations.*

each other and with the contours displayed on the 1914 map. The multicolor large deposits above the gray deposits represent dumping of dirt and debris as intentional fill to raise the ground surface above the level of ponding. This dumping of sediment was contemporaneous with the construction of a raised road that ultimately had asphalt laid on top of the deposits. A second episode of road construction also included the laying down a dense clay deposit upon which was another layer of asphalt. A concrete curb was constructed along the roadway during this second paving episode. A section of curbing was imaged during geophysical investigations (Hammerstedt and Regnier 2019) and shows up as a white line. The historic debris deposit of Trench C is contemporaneous with the existence of the pond in this area and, based on the age of the historic debris dumped into the pond, dates to the early 20th century (1900 – 1920) (See Appendix D).

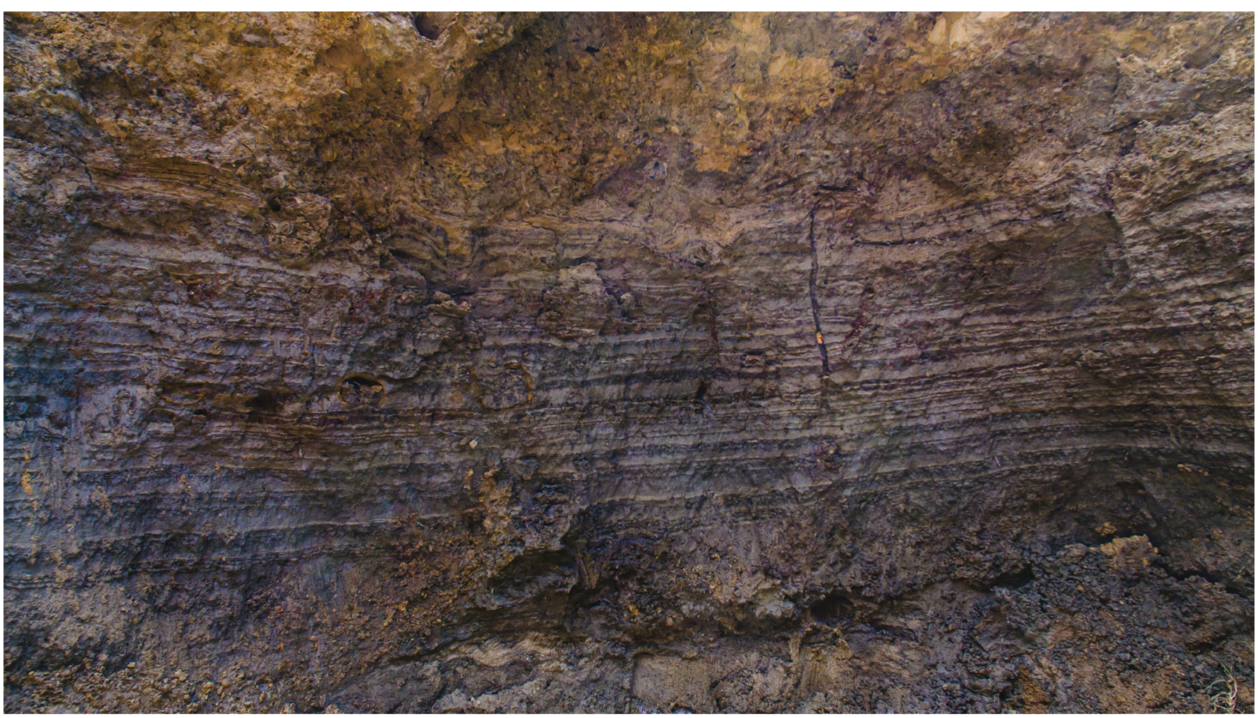


Figure 4.16. *View of laminated sediments in Trench C.*

Figure 4.17. *View of mechanical auger.*

Mechanical Auger Stratigraphy

A mechanical auger was utilized during the course of the backhoe excavation to provide additional data to assess the spatial extent and depth of the historic fill and buried land surface, as well as to help determine the potential presence of any burial locations that might have been missed by the trenching (Figure 4.17). A total of 12 augers were positioned in three parallel transects adjacent to, and east of the trenches. The augers averaged a depth of 5-5.5 m (17-18 ft) below surface and were collected in 1.5 m (5 ft) intervals. In each auger, yellowish brown to olive brown bedrock and the overlying residuum soil was encountered between 4-5.5 m (13-18 ft) below surface. Above the bedrock, the buried pre-1914 land surface observed in the trenches, was encountered in the augers between 2.5-4 m (8-13 ft) below surface. In Augers 1, 3 & 5, the buried clayey soil contained wood/peaty plant fragments and was more greenish black in color compared to very dark grayish brown to black observed in the other augers and in Trench A and the north portion of Trench B. Except for Auger 1, the compact mottled reddish-brown clay road fill 1-2.4 m (3-8 ft) observed in Trench B is present and appears as an anthropogenic disconformity with a slightly irregular topographic contact with the underlying buried surface. The upper 0-~1 m (0-3 ft) of the augers exposed the unconsolidated reddish brown to red silt beneath the modern surface soil. Figure 4.18 shows a complete 18 ft auger.

Figure 4.18. *View of a complete 5.5 m (18 ft) auger sample.*

Figure 4.19. *Pond/Wetland deposits buried by orange and yellow sediment fill dumps. Note water from seepage of water table in area of wetland/pond deposits on top of bedrock.*

Summary and Implications of the Depositional History in Sexton Area

Correlating the stratigraphic profiles of Trenches, A, B, & C with the profiles observed from the mechanical augers, insight into the history of landscape change in the project area can be interpreted. Observations of the stratigraphy demonstrate that Oaklawn is situated on an upland toeslope incised by what once was a slow-moving seasonal creek. The slow movement of the unnamed creek resulted in the formation of a pond/marsh environment in a section of low-lying creek (Figure 4.19). The superimposed stratification of historic artifacts and wood plank fragments in the lower deposits of the trench suggest that natural aggradation was the primary force driving deposition of the lower sediments that mantle the residuum soil derived from the weathering of the Seminole Formation sedimentary bedrock. The early natural aggradation was followed by and largely replaced with intentional dumping and infilling of the creek channel and low-lying areas with sediments brought from other locations. The result was to raise the surrounding original land surface with clay fill material to close to the same level of the landform—likely for the two documented road construction sequences. Once the road fell out of use, additional clean fill (red silt layer) was brought in from an indeterminant source and capped the earlier fill episodes. The red silt layer is, in turn, overlain by the modern A horizon that forms the surface of the cemetery in this area today. Based on the artifacts contained within the hauled in fill layers and location of the roads on historic maps, all the buildup of this area appears to post-date the 1921 massacre.

Fall 2020 and Summer 2021 Investigations

Clyde Eddy Area

Investigations conducted in the Fall of 2020 targeted an anomaly identified by the geophysical survey (Hammerstedt and Regnier 2019) in the south-central portion of the cemetery known as the Clyde Eddy area. Hand-held bucket augers and hydraulic truck-mounted cores were used to examine the subsurface deposits in the 20-meter diameter location of the anomaly adjacent to the Wallace Millender headstone. A total of five bucket augers were excavated to an average depth of 280 cmbs (9.1 ft) supplemented with five truck-mounted hydraulic cores to a depth of 260 cmbs (8.5 ft). Augers 1-4 encountered one stratigraphic unit (SU1, which is characterized by an A-AB-Bt soil horizon profile. This profile is consistent with the upland Dennis soil series. Auger 5 and the soil cores encountered the lower portion of SU1, however, consisted of over 200 cm/6.56 ft of loose silt and compact mottled clay fill.

The Upper portion of SU1 (0-180 cmbs) is composed of very dark brown (10YR 2/2) silt loam surface A horizon (30 cm thick) above grayish brown (10YR 5/2) silt loam AB horizon (60 cm thick). The basal portion of SU1 (180-280 cmbs) is composed of yellowish brown (10YR 6/8) to reddish yellow (7.5YR 6/6) silty clay grading to silty clay loam with many medium distinct light brownish gray (10YR 6/2) iron depletions and common fine prominent reddish yellow (7.5YR 6/6) masses of oxidized iron in the matrix. Iron depletions and oxidized iron represent alternating periods when the soil is saturated and poorly drained. The base of SU1 is the natural subsurface soil horizons of the Oaklawn landform and represents the lower portion of the mapped stacked Bt horizons. This soil developed in the residuum (parent material) of the weathered Pennsylvanian age shale that constitutes the landform bedrock. As the cores moved south, the basal soil became increasingly poorly drained, more gleyed and waterlogged, and are representative of frequent saturation.

As noted above, in Auger 5, the upper portion of SU1 is deeper (~ 200 cmbs/6.6 ft) and contains light gray (10YR 7/1) loose silt mantling compacted yellow and gray mottled clay fill beneath the surface A horizon. The mottled clay fill abruptly mantles the natural subsurface silty clay soil and contained unidentified metal fragments. The loose gray silt and compacted mottled clay fill suggests we encountered a single, unmarked burial shaft. The upper portion of the natural soil has been removed, evident by differences in the upper soil profile characteristics and the abrupt contact boundary between the mottled clay and the natural subsurface Bt horizon.

Original 18 Area: Mechanical Coring

Geoarchaeological investigations have consistently revealed that the origin, composition, and distribution of soils and sediments in the southwest section of Oaklawn is highly complex as a result of four distinct formation processes: (1) natural soil pedogenesis; (2) subsurface hydrologic discharge; (3) previously unknown anthropogenic landscape modifications (infilling); and (4) redoximorphic features. A series of geophysical anomalies had been identified in the southwest corner of the cemetery (Hammerstedt and Regnier 2019). In order to investigate these anomalies, a series of twelve (n=12) soil cores and one trench (Trench A) were excavated. The results of these cores and trench were used to help define the distribution of identified burials and the possible presence of a mass burial pit. In addition, the cores and trench provided additional data regarding the stratigraphic profile and evolution of the Oaklawn landform. Mechanical soil cores were placed in select areas that were accessible for the coring truck without hitting headstones, known grave locations, or interfering with ongoing backhoe excavations. The average depth of the cores was 250 cmbs/8.2 ft. and two distinct soil profiles were encountered.

The first profile consists of a buried soil truncated by anthropogenic fill. The profile is composed of silty clay parent material with a well-developed 2Ab-2Btb1-2Btb2-2C horizonation. The silty clay substrate 2C horizon is characterized by angular pebble-size siltstones. The thin seam of siltstones defines the boundary between the 2C horizon and the overlying subsurface 2Btb2 horizon. The 2Btb2 and 2Btb1 horizons are defined by distinct pedogenic redoximorphic features (Lindo et al. 2010; USDA-NRCS 2006; Vepraska 2015) and weak subangular blocky structure. These features are identifiable by redox concentrations (oxidized state) of strong brown (7.5YR 5/8) iron (Fe) soft masses and black (7.5YR 2.5/1) hard manganese (Mn) nodules, combined with redox depletions (reduced state) of Fe along ped surfaces characterized as gray color (7.5YR 6/1) iron depleted matrix. Core J encountered a greenish black (Gley 2 card – 3/10G) silt loam horizon at approximately 255 cm/8.3 ft. below ground surface.

The variegated color pattern observed in the cores are indicative of alternating wetting and drying soil conditions. Under anaerobic (waterlogged, oxygen-depleted) conditions in the soil leads to the dissolution and removal (reduction) of Fe/Mn oxides which changes the soil color to gray or greenish black. When Fe/Mn is in their oxidized state (aerobic oxygen-rich), the soil horizon color ranges from red, brown, and yellow. If Mn is oxidized, black nodules/concretions are present as observed in the cores.

A thin upper mantle (0-50 cmbs/0-1.6 ft) of loamy anthropogenic fill with an A-AC-C soil horizonation mantles the intact buried soil. The boundary between the fill and the buried soil is abrupt because of color and distinct textural changes. All the cores that encountered the intact buried natural soil were outside of the geophysical anomalies identified in this area.

The second core profile was only identified *within* the boundaries of two of the mapped geophysical anomalies. The soil profile for all the cores located within the anomaly boundaries was consistent except for a few subtle color and textural differences. At least two anthropogenic fill sequences were clearly visible in the cores. The lower profile of the cores consisted of compacted dark yellowish (10YR 4/4) to strong brown (7.5YR 5/8) mottled clay fill. The clay is structureless, compact, and is composed of relic (nodules/concretions with sharp boundaries) and contemporary (nodules/concretions with gradual/diffuse boundaries) redoximorphic features. Angular siltstone pebbles were present in the clayey fill encountered in some of the cores. The siltstone is reworked randomly into the fill and not as a thin seam that parallels the boundary between the subsurface soil horizons as seen in the natural soil profile.

Most of the cores did not encounter the natural subsurface soil horizon (Bt horizon) at the bottom, however, and in the few that did, the contact is abrupt with the overlying clayey anthropogenic fill. Two cores (Core 13 and Core F) encountered human bone fragments at the boundary between the fill and the Bt horizon at a depth of approximately 185 cmbs/6 ft. The clayey fill is mantled by the same loamy fill encountered in the cores located outside of the anomaly boundaries. The consistent and homogeneous nature of this upper fill in all cores reflects the intentional landscape modification of infilling (similar to that in the Sexton's area), although likely undertaken here to alleviate settling and subsidence caused by the high-water table and wet/dry cycles in this portion of the cemetery.

In summary, the soil cores in the southwest portion of Oaklawn revealed evidence for both natural and cultural modifications to landscape. The natural processes of pedogenesis combined with repeated changes in the water table resulted in well-defined redoximorphic features as seen in the oxidization and reduction of iron and manganese (masses and nodules/concretions) and the formation of a reduced soil matrix (gleyed/black colors). Cultural formation processes associated with the burial fill and later with land surface leveling (similar to that previously described in the Sexton's area) indicate the original surface of the landform in this part of Oaklawn was approximately 1-2 m/3.2-6.6 ft below the modern ground surface.

Original 18 Area: Trench A

Trench A combined the earlier trenches opened separately in October 2020 to investigate Anomalies 6 and the Original 18. The deposits in Trench A are extremely complex and the result of natural pedogenic and taphonomy processes, combined with anthropogenic formation processes. This section describes the natural and cultural strata documented in Trench A.

East Wall (Row 1)

The east wall of Trench A is characterized by a sequence of gently sloping parallel bedding historic fill deposits that follow the contour of the Oaklawn landform (Table 4.1, Figure 4.20). The fill deposits alternate from very dark gray – grayish brown (10YR 3/1 – 10YR 3/2) silt loam to brown (10YR 4/3) clay loam. The silty fill deposit at the base of the profile is laminated with light colored silt and fine sand contains historic period metal artifacts. The faint thin laminated silt occurs when fine grained particles are deposited horizontally in slow moving to stagnant water. The clayey fill has very dark grayish brown (10YR 3/2) mottles and contain more artifacts of glass and dolomite rock fragments. A very dark grayish brown (10YR 3/2) soil (2Ab-2AC) is present between 35-93 cmbs. The dark soil is a relict surface (A horizon) that was removed—likley from another location in the cemetery—and redeposited across most of Trench A. This soil is uniform and mantles the burial fill on the east and south sections of the trench. This buried relict surface

Table 4.1. Trench A Backhoe Row 1, east wall description

Depth (cm)	Unit	Description
0-20	I	Very dark grayish brown (10YR 3/2) moist, sandy loam; strong large granular structure; very friable; many fine roots; clear smooth boundary.
20-35	II	Strong brown (7.5YR 5/8) moist, very fine sand; single-grained; well-sorted; loose; many fine and medium roots; abrupt wavy boundary.
35-55	III	Very dark grayish brown (10YR 3/2) moist, silty clay loam; strong medium granular; hard, firm; few fine and large roots; common earthworm casts; clear wavy boundary.
55-93	IV	Dark grayish brown (10YR 4/2) moist, silt loam; massive, soft friable; laminated silt and very fine sand in bottom 15 cm; few small and medium roots; common charcoal flecks, dolomite cobble; abrupt wavy boundary.
93-125	V	Brown (10YR 4/3) moist, gravelly clay loam; massive, soft, friable; few faint very dark grayish brown (10YR 3/2) mottles; angular siltstone and dolomite pebbles, broken glass bottle top in the upper 10 cm; abrupt irregular boundary.
125+	VI	Very dark gray (10YR 3/1) moist, faint laminated silt and very fine sand; weak fine granular structure; soft, friable; few fine roots; angular siltstone pebbles, red brick fragment.

O18 Backhoe Row 1 East Wall

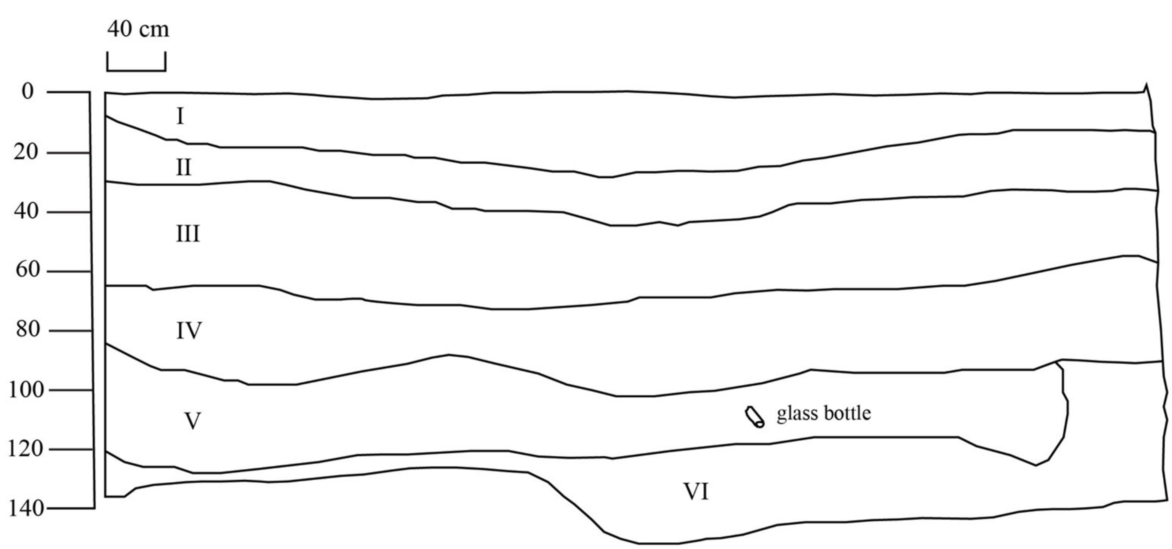


Figure 4.20. *Profile illustration of Backhoe Row 1, east wall (depth taken from line datum, 5 cm above surface).*

soil is also on the north and southwest sides of the trench, but contains a high density of angular siltstone pebbles, is thicker, not laminated, and rests abruptly on the original subsurface soil (Bt horizon).

The thin modern soil (A-C) in the upper 35 cm of the wall profile developed in strong brown (7.5YR 5/8) loamy sand fill that had been intentionally dumped in this area. This reddish sand is uniform across the entire trench and was likely used to level and fill the slightly concave area in the southwest portion of the cemetery. Interestingly, this same reddish fill also mantles the Sexton's area.

South Wall (Rows 1-8)

The profile exposed in the south wall of Rows 1-8 in Trench A is consistent with that of the east wall except for the presence of visible vertical grave shafts that transect the horizontally laid down fill sequence and in the more bioturbated nature of the upper fill sequence (Tables 4.2-4.4; Figure 4.21). The grave shaft fill is a distinctive, mottled very dark grayish brown (10YR 3/2) and brown (10YR 4/3) clay loam. The top portion of the fill in some profile sections consist of a thin light yellowish brown (10YR 6/4) gravelly clay. The shafts fill is more compact, mottled, and clayey compared to the surrounding sequence of siltier fill. The trench exposed a basal gravelly dark grayish brown (10YR 3/2) to black (10YR 2/1) clay loam fill deposit mottled with light yellowish brown (10YR 4/6) clay. This organic-rich dark soil is a relict A horizon removed from the surface at some point in time and redeposited (reverse-stratigraphy) at the base of the trench. This dark soil has an abrupt contact with the underlying natural subsurface soil (Bt horizon) and contains poorly sorted angular siltstone pebbles. Similar gravels were observed in the same dark soil exposed in the profiles along the north side of Trench A.

South Wall Extension – East Profile (Row 3)

A small extension of the south wall provided telling data concerning the original landform surface in this portion of Oaklawn. Extending over 200 cm below surface, the trench exposure revealed the same sequence of silty horizontally stratified fill mantling the pre-1921 land surface as observed in the Sexton's area (Table 4.5, Figure 4.22). The fill mantles two gleyed deposits with similar soil characteristics to the wetland/pond feature encountered in the Sexton's area. The upper deposit (113-165 cmbs) is black (Gley 1 2.5/N) laminated silt and sand. The upper 30 cm contained a high density of pre-1920s artifacts (See Chapter 6). Weathered fragments of siltstone were observed within the artifact concentration. The lower deposit has a very dark gray gleyed color (Gley 1 3/N) and consists of silty clay loam sediments and is sterile for artifacts. A bucket auger was excavated at the base of the trench in the corner of the extension to a depth of 260 cm below surface. The subsurface Bt and C horizons of the natural landform were encountered in the auger. From 200-250 cm below surface, the silty clay Bt horizon was a light yellowish brown (10YR 6/4) with strong brown (7.5YR 5/8) Fe soft masses. Few fine black (10YR 2/1) Mn nodules/concretions were present in the lower portion of the horizon. At 260 cm below surface, the auger encountered the yellowish brown (10YR 5/8) silty clay loam C horizon with gray (10YR 6/1) Fe depletions and angular siltstone pebbles.

Table 4.2. Trench A Backhoe Row 1, south wall description.

Depth (cm)	Unit	Description
0-25	I	Very dark gray (7.5YR 3/2) moist, sandy loam; strong large granular structure; very friable; many fine and medium roots; clear wavy boundary.
25-50	II	Strong brown (7.5YR 5/8) moist, very fine sand; single-grained; well-sorted; loose; few fine and medium roots; abrupt irregular boundary.
50-85	III	Dark brown (10YR 3/3) moist, clay loam; few large distinct strong brown (7.5YR 4/6) mottles; strong medium granular structure; hard, firm; few fine roots; abrupt to clear wavy boundary.
85-105	IV	Dark grayish brown (10YR 4/2) moist, laminated silt and silt loam; weak fine granular structure; soft, friable; few fine and medium roots; abrupt irregular boundary.
105-120	V	Strong brown (7.5YR 4/6) and dark yellowish brown (10YR 4/4) moist, gravelly clay loam; massive, hard, firm; few distinct very dark grayish brown (10YR 3/2) mottles; angular siltstone and dolomite pebbles; abrupt irregular boundary.
120-145	VI	Very dark gray (10YR 3/1) moist, faint laminated silt; soft, friable; few medium roots; abrupt smooth boundary.
145-165+	VII	Gray (10YR 5/1) moist, sandy loam; weak fine granular structure; faint laminations; few coarse Fe soft masses; common distinct horizontal streaks of gray (10YR 6/1) iron depletions.
65-165	VIII-Grave Shaft	Very dark grayish brown (10YR 3/2) and brown (10YR 4/3) moist, gravelly clay; massive; very hard, very firm; many distinct yellowish brown (10YR 5/6) mottles; abrupt smooth boundary.

Table 4.3. Trench A Backhoe Row 8, south wall description.

Depth (cm)	Unit	Description
0-20	I	Very dark grayish brown (10YR 3/2) moist, sandy loam; strong large granular structure; very friable; many fine and medium roots; clear wavy boundary.
20-30	II	Strong brown (7.5YR 5/8) moist, very fine sand and loamy sand; single-grained; well-sorted; loose; few fine and medium roots; abrupt broken boundary.
30-50	III	Dark brown (10YR 3/3) and strong brown (7.5YR 5/8) moist, faint laminated silt loam; few large distinct strong brown (7.5YR 4/6) and light yellowish brown (10YR 4/6) mottles; massive structure; hard, friable; few fine and large roots; 10% angular pebble-size siltstone; historic red brick whole and fragments; abrupt wavy boundary.
50-80	IV	Dark yellowish brown (10YR 4/4) and dark brown (10YR 3/3) moist, silty clay loam; few fine faint strong brown (7.5YR 5/8) mottles; massive; hard, firm; abrupt wavy boundary.
80-120	V	Dark grayish brown (10YR 3/2) and black (10YR 2/1) moist, gravelly clay loam; few large distinct light yellowish brown (10YR 4/6) mottles; weak fine granular structure (massive structure in shaft fill); hard, friable; 20% angular pebble-size siltstone.; abrupt smooth boundary with grave shaft.

Table 4.4. Trench A backhoe end, south wall description.

Depth (cm	Unit	Description
0-40		Backhoe trench blade cut
40-55	I	Brown (7.5YR 5/3) moist, clay; massive, hard, firm;
45-60	II	Strong brown (7.5YR 5/8) moist, silty clay; massive, hard, firm; common medium distinct gray (7.5YR 6/1) iron depletion in matrix; abrupt broken boundary.
40-110	III/IV individual shafts	Very dark grayish brown (10YR 3/2) and strong brown (10YR 5/6) moist, clay; massive; very hard, very firm; many faint light brownish gray (10YR 6/2) iron depletions in matrix; abrupt smooth boundary.
40-110	V	Very dark grayish brown (10YR 3/1) moist, gravelly silty clay loam; few large distinct light yellowish brown (10YR 4/6) mottles; weak fine granular structure (massive structure in shaft fill); hard, friable; 5% angular pebble-size siltstone; abrupt smooth boundary with grave shaft.
40-110+	VI	Yellowish brown (10YR 5/6) moist, clay; weak coarse subangular blocky structure; hard, firm; many medium distinct gray (10YR 6/1) iron depletions in the matrix.

O18 Backhoe Row 1 South of Burial 15 South Profile

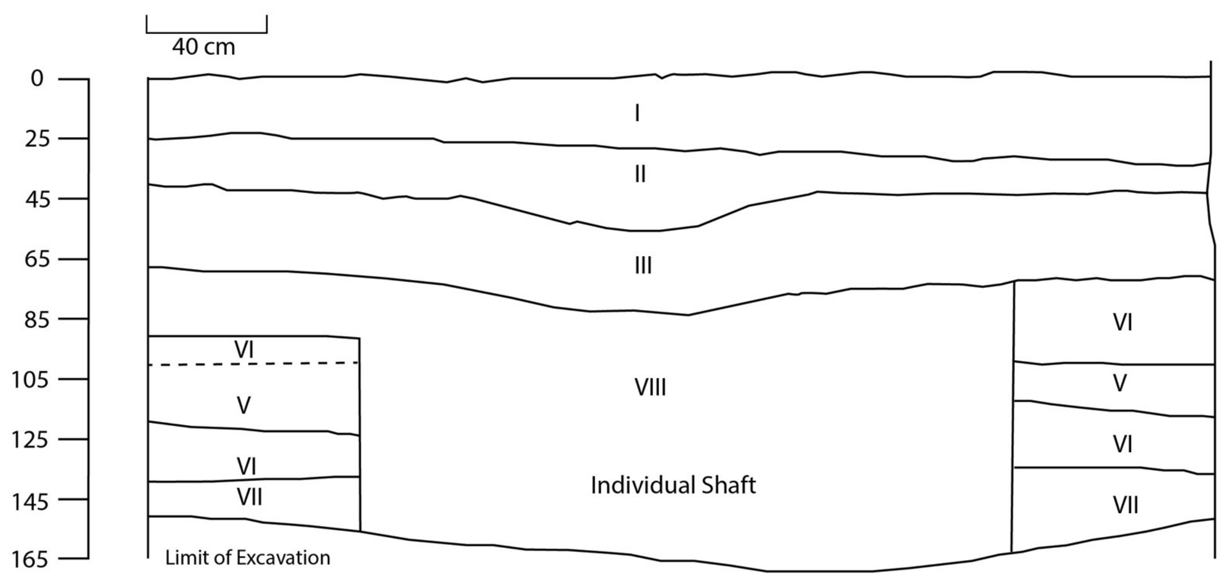


Figure 4.21. *Profile illustration of Backhoe Row 1, south wall (depth taken from line datum, 5 cm above surface).*

Table 4.5. Trench A Backhoe Row 3, south extension east wall description.

Depth (cm)	Level	Description
0-10	I	Very dark gray (7.5YR 3/2) moist, sandy loam; strong large granular structure; very friable; many fine and medium roots; clear wavy boundary.
10-30	II	Strong brown (7.5YR 5/8) moist, very fine sand; single-grained; well-sorted; loose; few fine and medium roots; abrupt smooth boundary.
30-65	III	Very dark grayish brown (10YR 3/2) moist, clay loam; few large distinct strong brown (7.5YR 4/6) mottles; strong medium granular structure; hard, firm; few fine roots; abrupt smooth boundary.
65-113	IV	Dark grayish brown (10YR 4/2) and light yellowish brown (10YR 6/4) moist, distinct fine laminated silt and silt loam; weak fine granular structure; soft, friable; common fine and few large roots; gradual smooth boundary.
113-165	V	Strong brown (7.5YR 4/6) and dark yellowish brown (10YR 4/4) moist, gravelly clay loam; massive, hard, firm; few distinct very dark grayish brown (10YR 3/2) mottles; angular siltstone and dolomite pebbles; abrupt irregular boundary.
165-200	VI	Black (Gley 1 2.5N) moist, faint laminated silt loam and sand; soft, friable; few fine and medium roots; dense historic period artifacts; gradual smooth boundary.
200-260 core data	VII	Light yellowish brown (10YR 6/4) moist, silty clay; moderate medium subangular blocky structure; common coarse Fe soft masses; common distinct horizontal streaks of gray (10YR 6/1) iron depletions.

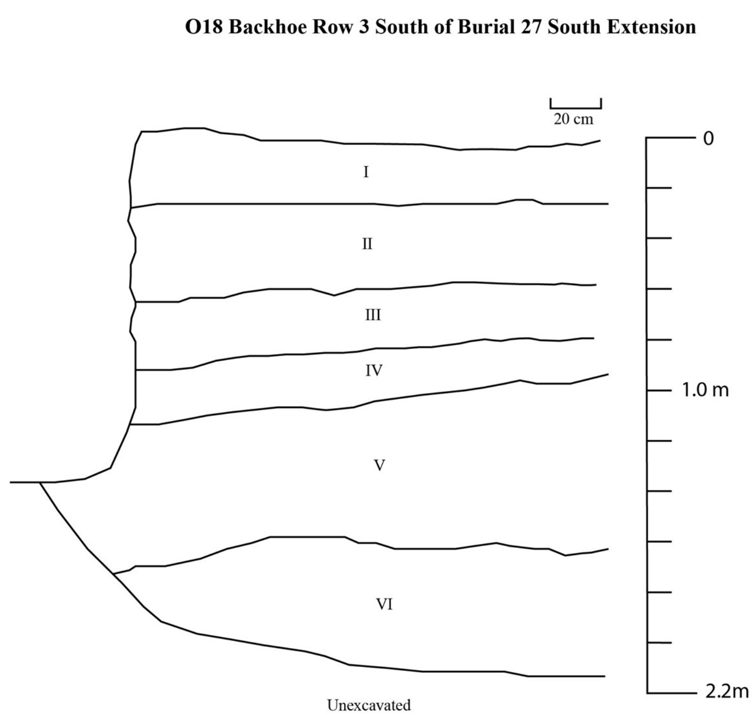


Figure 4.22. Profile illustration of Backhoe Row 3, south extension east wall (depth taken from line datum, 5 cm above surface).

Mid-section West Wall (Rows 3-4)

The west wall in Rows 3 and 4 provide the some of the most telling evidence relating to the anthropogenic modifications that have occurred in the southwest portion of Oaklawn cemetery and exposed significant landscape modification (Tables 4.6-4.7, Figure 4.23). The south portion of the wall consisted primarily of silty, waterlogged fill deposited parallel with the original slope of the Oaklawn landform. The north segment (north of the 2020 backhoe trench cut) of the wall is characterized by irregular and discontinuous clayey fill sequences, a disturbed and redeposited thick A horizon, and clearly delineated individual grave shafts.

The north half of the profile is characterized by three distinct grave shafts (Unit VI a, b, c, d) surrounded by discontinuous, irregular sequences of artificial fill mantled by the red sand and modern A horizon (Units I and II). The fill of the burial shafts is similar to other shafts encountered in Trench A. The fill consists of intermingled yellowish brown (10YR 5/4) and very dark grayish

Table 4.6. Trench A Backhoe Row 3-4, west wall (from north wall to 2020 Trench) description.

Depth (cm)	Unit	Description
0-15	I	Brown (10YR 3/3) moist, clay loam; moderate medium granular structure; slight hard, friable; many fine and medium roots; clear smooth boundary.
15-30	II (SW) a-c	Yellowish red (5YR 4/6) moist, very fine sand; weak fine granular structure; common fine and medium roots; abrupt broken boundary.
15-30	II (NW)	Brown (7.5YR 5/4) moist, clay; weak fine subangular blocky structure; few fine and medium roots; abrupt broken boundary.
30-125	III	Very dark gray (10YR 3/1) moist, gravelly clay; weak fine granular structure; hard, firm; few fine roots; 5% angular siltstone pebbles; abrupt smooth boundary.
85-125	IV	Strong brown (7.5YR 4/6) moist, gravelly clay; massive, hard, firm; common medium distinct light greenish gray (Gley 1, 7/1) mottles; few fine roots; 5% angular siltstone pebbles; abrupt smooth boundary.
125+	V	Strong brown (7.5YR 5/8) and yellowish brown (10YR 5/6) moist, clay; weak coarse subangular blocky structure, hard, firm; many medium distinct gray (7.5YR 6/1) gray iron depletions in the matrix; common fine distinct yellowish brown oxidized Fe masses; few fine black (10YR 3/1) Mn concretions; abrupt smooth boundary with grave shafts; abrupt irregular boundary with overlying levels.
45-125	VI-Grave Shafts (a-d)	Very dark grayish brown (10YR 3/2) and yellowish brown (10YR 5/4) moist, clay; massive; very hard, very firm; few fine distinct yellowish brown (10YR 5/6) oxidized Fe masses; many medium distinct gray (10YR 6/1) iron depletions in the matrix; abrupt irregular boundary with overlying levels; clear smooth boundary with intact subsurface soil.

Table 4.7. Trench A Backhoe Row 3-4, west wall (from 2020 trench to south wall) description.

Depth (cm)	Unit	Description
0-20	I	Dark brown (7.5YR 3/2) moist, sandy loam; weak fine granular structure; friable; many fine and medium and few large roots; clear smooth boundary.
20-30	II	Yellowish red (5YR 4/6) moist, very fine sand; massive structure; soft, friable; few fine and medium roots; abrupt smooth boundary.
30-60	III	Very dark grayish brown (10YR 3/2) moist, clay loam moderate fine granular structure; few fine and medium roots; sparse historic artifacts; abrupt broken boundary.
60-85	IV	Strong brown (7.5YR 5/8) moist, gravelly silty clay; massive structure; hard, firm; few medium distinct gray (7.5YR 6/1) gray iron depletions in the matrix; common fine distinct yellowish brown (10YR 4/6) oxidized Fe masses 5% angular siltstone pebbles; abrupt smooth boundary.
85-125+	V	Very dark grayish brown (10YR 3/2) moist, silty clay loam; weak fine granular structure; faint lamination; soft, friable; few fine roots; increase density of historic artifacts.

brown (10YR 3/2) clay with compact massive structure. The bottom portion of the fill grades to many distinct gray (10YR 6/1) Fe depletions in the matrix.

The fill surrounding the shafts consists of very dark grayish brown (10YR 3/2) to black (10YR 2/1) gravelly clay loam (Unit III). Again, this dark organic-rich soil is a redeposited A horizon that mantles this portion of Oaklawn. This redeposited dark soil overlies the intact strong brown (7.5YR 5/8) and light yellowish brown (10YR 6/4) silty clay loam subsurface Bt horizon (Unit V) with gray (10YR 6/1) Fe depletions in the matrix exposed in the base of the trench. A narrow section of the Bt horizon (Unit IV) was present between two grave shafts at 85-125 cmbs. The same dark grayish brown gravelly soil (Unit III) abruptly overlies the narrow segment of the Bt horizon as it does in the northwest corner of the wall profile.

The south end of the profile consists of the same sequence of silty clay loam fill observed in the east and south walls of Trench A. The basal Unit VI consists of very dark grayish brown (10YR 3/2) silty clay coarsening downward to silt loam/very fine sandy loam with faint lamination in the upper 10 cm. The overlying Unit IV is characterized by intermingled light yellowish brown (10YR 6/4) and strong brown (7.5YR 5/8) clay fill with light greenish gray (Gley 1 7/1) Fe depletion masses in the matrix. Unit IV is likely part of the same clay fill sequences (Unit VI) observed on

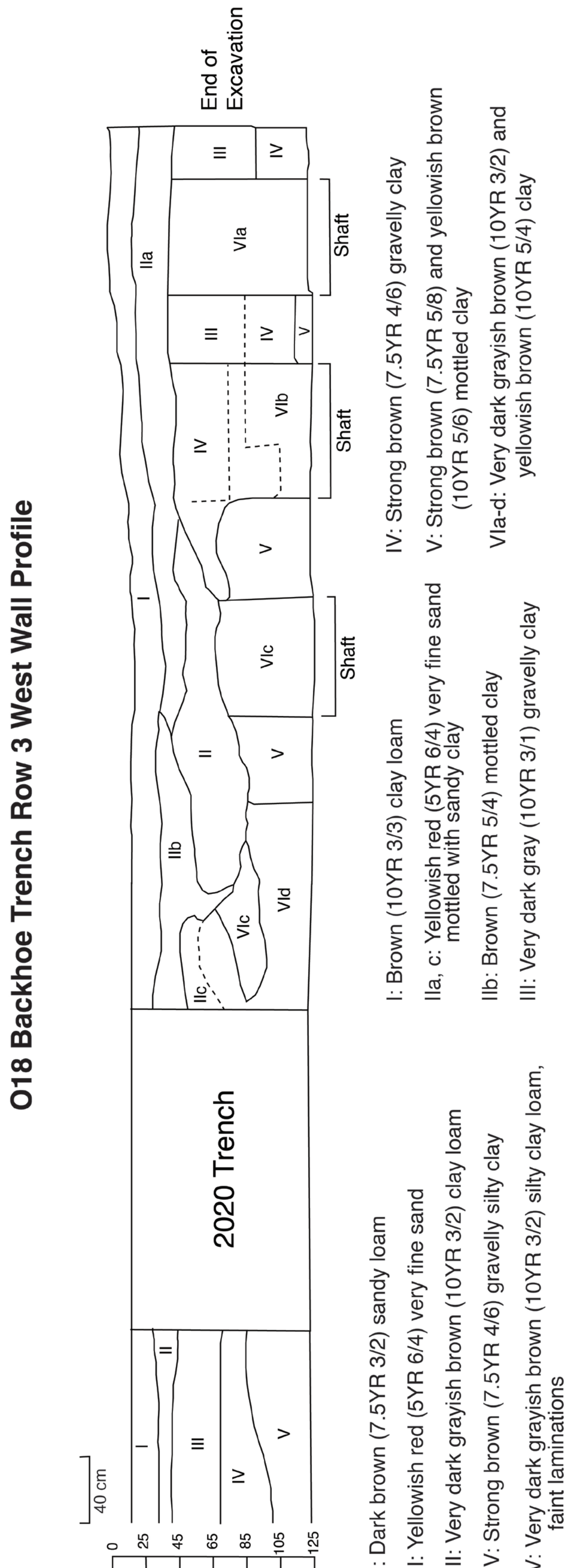


Figure 4.23. *Profile illustration of O18 Trench A Backhoe Row 3 west wall (depth taken from line datum, 5 cm above surface).*

the north side of the 2020 backhoe trench cut. Unit IV is mantled by the redeposited very dark grayish brown (10YR 3/2) clay loam A horizon (Unit III). The upper 30 cm of the wall profile consists of the red sand (Unit II) and modern A horizon (Unit I).

North Wall-NE (Rows 1-2)

The north wall in Rows 1 and 2 went to a depth of 135 cmd below surface and consisted of four stratigraphic units (Table 4.8, Figure 4.24). The base, Unit IV (96-135 cmbs) is light yellowish-brown clay with weak coarse subangular blocky structure and many medium distinct gray (10YR 6/1) Fe depletions in the matrix. Unit IV represents the intact portion of the landform subsurface soil (Bt horizon). Unit III (46-96 cmbs) is very dark grayish brown (10YR 3/2) gravelly silty clay loam with fine granular structure. The gravels are pebble-size angular siltstone and comprise 20% of the matrix. The lower boundary of Unit III is clear and smooth but is abrupt and broken where Unit II is intrusive into it. Unit III is the same disturbed buried soil observed in other sections of Trench A. Unit II (20-135 cmbs) is light yellowish brown (10YR 6/4) and strong brown (7.5YR 5/8) gravelly clay fill with dark grayish brown (10YR 3/2) many medium faint mottles. The gravels in the matrix are pebble-size angular siltstone. Unit I (0-20 cmbs) is the very dark grayish brown silt loam modern A horizon. The typical red sand layer beneath the A horizon observed elsewhere is discontinuous in this portion of the trench.

North Wall-Center (Rows 3-5)

There are four units associated with this section of Trench A (Table 4.9). These units all

Table 4.8. Trench A Backhoe Rows 1-2, north wall description.

Depth (cm)	Unit	Description
0-25	I	Very dark grayish brown (10YR 3/2) moist, silt loam; weak fine granular structure; soft, friable; many fine and few medium roots; abrupt smooth boundary.
25-135	II	Light brown (10YR 6/4) moist, clay; massive structure; many fine distinct very dark grayish brown (10YR 3/2) and strong brown (7.5YR 5/8) mottles; many fine and medium roots; 10% angular pebble-size siltstone; abrupt irregular boundary.
45-95	III	Very dark grayish brown (10YR 3/2) moist, gravelly silty clay loam; strong medium granular; hard, friable; few fine roots; 40% angular pebble-size siltstone; clear broken boundary.
95-135	IV	Light yellowish brown (10YR 6/4) moist, clay; weak coarse subangular blocky structure; hard, firm; many medium distinct gray (10YR 6/1) iron depletions in the matrix; abrupt broken boundary.

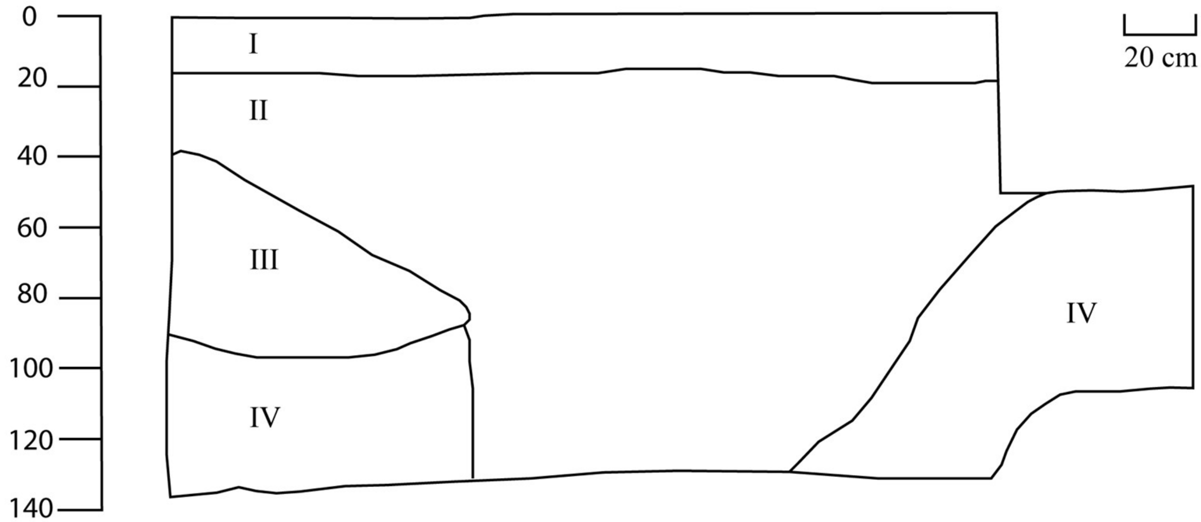


Figure 4.24. *Profile illustration of Backhoe Row 2, north wall (depth taken from line datum, 5 cm above surface).*

uniformly parallel the modern surface. The lowest basal unit (95-124 cmbs) is characteristic of the natural subsurface C horizon. This unit consists of light yellowish brown (10YR 6/4) and strong brown (7.5YR 5/8) silty clay with gray (10YR 5/1) Fe depletions in the matrix and common medium prominent Fe soft bodies. A thin layer of angular pebble-size siltstone lined the upper 5 cm of the unit. Above is Unit III (43-95 cmbs), a very dark grayish brown (10YR 3/2) gravelly clay loam. This unit also contained pebble-size siltstone; however, they were poorly sorted within the matrix. Unit III is representative of the disturbed buried A horizon that characterizes the southern portion of Oaklawn. If this A horizon was *in situ*, its boundary with the

Table 4.9. Trench A Backhoe Rows 3-5, north wall description.

Depth (cm)	Unit	Description
0-30	I	Brown (7.5YR 4/4) moist, sandy clay loam; weak fine granular structure; hard, friable; many fine and medium roots; historic red brick fragments; abrupt smooth boundary.
30-100	II	Very dark grayish brown (10YR 3/2) moist, clay loam; massive structure; common fine distinct yellowish brown (10YR 5/4) and strong brown (7.5YR 5/8) mottles; abrupt irregular boundary.
100-145	III	Very dark grayish brown (10YR 3/2) moist, clay loam; weak medium granular structure; hard, friable; 20% angular pebble-size siltstone; charcoal fragments in upper 10 cm.
145+	IV	Strong brown (7.5YR 5/8) and yellowish brown (10YR 5/6) moist, clay; weak coarse subangular blocky structure, hard, firm; many medium distinct gray (7.5YR 6/1) gray iron depletions in the matrix; common fine distinct yellowish brown oxidized Fe masses; few fine black (10YR 3/1) Mn concretions;

underlying subsurface soil would not be abrupt and it would not have the angular siltstone gravels that characterize the parent material (C horizon).

North Wall-NW (Rows 6-7)

The northwest section of Trench A is characterized by six stratigraphic units (Table 4.10). Except for Unit III, the other units are various fill episodes, including the grave shaft fill (Units V & VI). The grave shaft fill (30-125 cmbs) is consistent with other shaft fill encountered in Trench A and consists of mottled very dark grayish brown (10YR3/2) and brown (10YR 4/3) gravelly clay with massive structure. The lower 15 cm (Unit VI) is the base of the fill that has been modified by the high-water table cycles as evident by the gleyed dark gray color. The boundaries with the overlying and adjacent units are abrupt and broken. Unit IV (50-125 cmbs) is another fill episode characterized by a more grayish coloration than the shaft fill. It has a massive compact structure with few angular pebble-size siltstone scattered in the matrix. Unit II (50-125 cmbs) consists

Table 4.10. Trench A Backhoe Rows 6-7, north wall (NW) description.

Depth (cm)	Unit	Description
0-30	I	Intermingled very dark grayish brown (7.5YR 4/3), black (10YR 2/1), and strong brown (7.5YR 5/8) moist, silt loam; weak fine granular structure; soft, friable; many fine and few medium roots; abrupt wavy boundary.
30-50	II	Strong brown (7.5YR 5/8) moist, very fine sand; single-grained; well-sorted; loose; many fine and medium roots; abrupt wavy boundary.
50-125	III	Light yellowish brown (10YR 6/4) moist, clay; weak coarse subangular blocky structure; hard, firm; many medium distinct gray (10YR 6/1) iron depletions in the matrix; few fine oxidized Fe masses; few fine distinct black (10YR 2/1) Mn concretions; abrupt irregular/broken boundary.
50-125	IV	Dark gray (7.5YR 4/1) to light gray (7.5YR 7/1) moist, clay; massive structure; many medium distinct light brown (7.5YR 6/3) and strong brown (7.5YR 5/8) mottles; abrupt irregular boundary.
30-125	V (grave shaft)	Very dark grayish brown (10YR 3/2) and brown (10YR 4/3) moist, gravelly clay; massive; very hard, very firm; many distinct yellowish brown (10YR 5/6) mottles; abrupt broken boundary.
115-125+	VI (gleyed)	Very dark gray (10YR 3/1) and very dark gray (Gley 1 3/3N) moist, clay; massive structure; soft, friable; 5% subangular pebble-size siltstone.

of light yellowish brown (10YR 6/4) clay with distinct gray (10YR 6/1) Fe depletions and few oxidized Fe masses in the matrix. Also present were few fine Mn concretions. Unit III is consistent with the subsurface Bt horizon mapped for the Oaklawn landform. Units I and II (0-30, 30-50 cmbs) are the final fill sequence consisting of the red sand underlying the modern A horizon.

North Wall-NW (Row 8)

The north wall in Row 8 consists of five stratigraphic units (I-V) (Table 4.11, Figures 4.25). Unit V (120-140 cmbs) is the west side of the grave shaft that extends from Row 7 (see description above). Unit IV (90-140 cmbs) was exposed in the far northwest corner of the profile and consists of very dark gray (10YR 3/1) silty clay. Unit IV contains few subangular pebble-size siltstone gravels. This unit has similar characteristics to the disturbed and redeposited A horizon observed in other portions of Trench A. Unit III (80-140 cmbs) is light yellowish brown (10YR 6/4) clay with weak coarse subangular blocky structure. This natural Bt horizon is characterized by distinct gray (10YR 6/1) Fe depletions and oxidized Fe masses in the matrix. Additional, Unit III contained few Mn concretions.

Table 4.11. Trench A Backhoe Row 8, north wall (NW) description.

Depth (cm)	Unit	Description
0-80	I	Intermingled very dark grayish brown (7.5YR 4/3), black (10YR 2/1), silt loam and strong brown (7.5YR 5/8) moist, sandy loam; weak fine granular structure; soft, friable; many fine and few medium roots; abrupt wavy boundary.
80-120	II	Brown (7.5YR 5/3) and black (10YR 2/1) moist, gravelly silty clay; massive structure; hard, friable; few fine prominent strong brown (7.5YR 5/8) and very dark grayish brown (10YR 3/2) mottles; 40% angular pebble-size siltstone; abrupt irregular/broken boundary.
80-140	III	Light yellowish brown (10YR 6/4) moist, clay; weak coarse subangular blocky structure; hard, firm; many medium distinct gray (10YR 6/1) iron depletions in the matrix; few fine oxidized Fe masses; few fine distinct black (10YR 2/1) Mn concretions; abrupt irregular/broken boundary.
90-140	IV	Very dark gray (10YR 3/1) moist, silty clay; weak fine granular structure; soft, friable; 5% subangular pebble-size siltstone; abrupt irregular/broken boundary.
120-140	V (Grave shaft)	Very dark grayish brown (10YR 3/2) and brown (10YR 4/3) moist, gravelly clay; massive; very hard, very firm; many distinct yellowish brown (10YR 5/6) mottles; abrupt broken boundary.

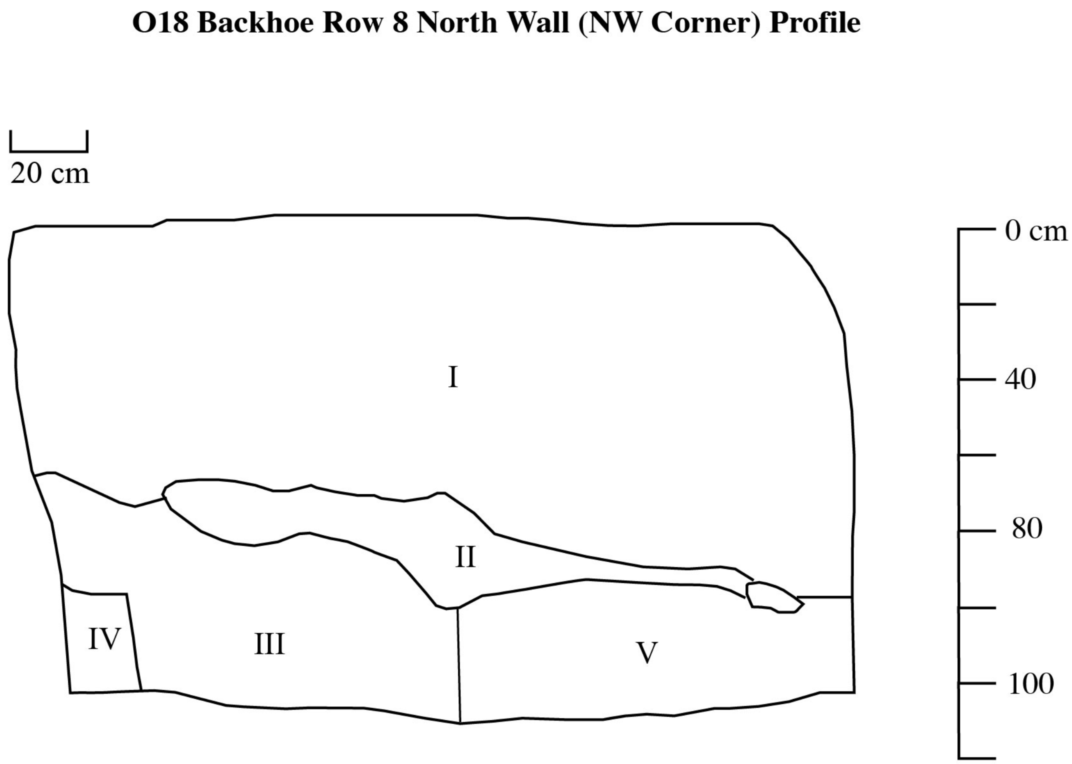


Figure 4.25. *Initial Trench A excavation, view north at the siltstone gravel lense in the NW corner.*

The overlying Unit II (80-120 cmbs) is brown (7.5YR 5/3) and brownish yellow (10YR 6/6) gravelly silty clay with few fine prominent strong brown (7.5YR 5/8) and very dark grayish brown (10YR 3/2) mottles. The bottom five cm of the unit consisted of poorly sorted, pebble-size angular siltstone. The siltstone pebbles parallel the southward slope of the buried topography and abruptly mantles the underlying natural Bt horizon (Unit III). The siltstone pebbles were also observed between Unit III and Unit V (grave shaft) boundary Unit I (0-80 cmbs) consist of the modern A horizon and underlying sandy red fill that is ubiquitous in the Sexton's Area and the south portion of Oaklawn.

Summary of Trench A Stratigraphy

Pedogenic processes combined with historic and modern anthropogenic landscape modifications resulted in an extremely complex stratigraphic matrix in Trench A. The base of the trench consists of three stratigraphic natural units (160-270 cmbs/5.2-8.9 ft) mantled by compacted, mottled historic fill: (1) a truncated subsurface yellowish brown (10YR 5/4) silty clay soil; (2) a saturated black (Gley 1, 2.5/N) alternating coarse silt and fine sand wetland soil, and (3) a pebble-size gravel fluvial deposit. While, the silty clay subsurface soil (Bt horizon) is consistent across the base of the entire trench, the black gleyed silty sand sediments and gravel deposit are only present in the eastern and southern sections. The gleyed sediments contained a relatively high density of artifacts (see Chapter 6) consistent with the pattern similarly documented in the wetland/pond sediments of the Sexton's area.

The well-sorted, rounded pebbles encountered in the far southeast corner of Trench A support the earliest maps depicting the location of the relict stream that once flowed through the south portion of the cemetery landform. Indeed, this stream remains an active watercourse, however it is now mantled by close to 2 m/6 ft of historic fill. The various historic fill sequences of reworked clay described in the trench profiles represent sustained episodes of landscape infilling and leveling—likely due to the saturated conditions of the soil and by subsequent burial interments. As this portion of the cemetery experience continued soil saturation leading to land subsidence (bowl shape depression), additional fill (red sand) was deposited homogeneously across the entire area to raise the elevation. Interestingly, as the relict stream was buried ever more deeply by successive infilling episodes, it continued to impact the natural sediment matrix and fill of graves emplaced in this area. The continued movement of water through the sediment and wet/dry cycles resulted in a color and textural homogenization of the increasingly deeply buried natural sediments and grave fills in the southwestern portion of the cemetery.

Redoximorphic Features of Trench A

Redoximorphic features are the primary pedogenic processes active in our study area of Oaklawn. Using these features for identifying the magnitude of the moisture regime are important to understanding the landscape changes that have occurred across the landform of Oaklawn cemetery.

The reduction, translocation, and oxidation of Fe and Mn formed in redoximorphic features as a result of anaerobic conditions (oxygen is reduced) in Trench A. In an anaerobic environment, oxygen is reduced first in solution, then nitrate, followed by Mn, Fe, and finally carbon dioxide (reduced to methane) if water saturation conditions persist (reduction sequence: O_2-NO_3-Mn^{+4}-$Fe^{+3-}$$SO_4^{-2}$-$CO_2$). Depletion of oxygen is evident in the southern portion of Trench A where the soil color consisted of dark gray, black, and gleyed colors due to the consistently high-water table.

In comparison, the stratigraphic profile of the northern half of Trench A was intermittently saturated, resulting in the formation of redoximorphic features where oxidized Fe and Mn were prominent in both the natural soil at the base of the trench and in the overlying fill deposits. Oxidation of Fe resulted in red, brown, yellow colors, while the black colors observed were due to oxidized Mn. The formation of redoximorphic features is dependent on the chemistry of Fe and Mn oxides operating in anaerobic/aerobic environment, which will act on both natural soil and disturbed soil/historic fill. As such, these processes homogenized the natural matrix and various fill episodes and significantly affected the ability to clearly define changes in different fill events while Trench A was being excavated.

The clayey fill used in this section of the cemetery for infilling and levelling, has similar soil characteristics (texture, color, siltstone gravels) to the natural landform subsurface (Bt horizon) and substrate (C horizon) soil at Oaklawn. In short, the relationships between the natural soil and historic fill sequences exposed during the excavation of Trench A were masked as a result of the natural processes of saturation and desaturation leading to the redoximorphic features observed in the profiles. Once the trench was expanded to the north, these features were not as prominent due to the higher topographic setting (likely the edge of the toeslope of the landform) and reduced saturated conditions of the soil and fill. Consequently, grave shaft fill was less homogenized and more distinct than in the initial areas of the trench excavation. Moreover, when Trench A was expanded further south, anaerobic features were better defined due to consistent saturated conditions in the soil, which dominated this portion of the cemetery due to the buried creek channel. This now deeply buried creek still flows with clear water, as was observed in the burials exposed in the far southeast corner of the trench. In summary, the natural soil formation processes of an anaerobic/aerobic environment combined with the previously unknown and sustained historic landscape modifications resulted in a sequence of complex deposits that not only made visual identification of burial extremely difficult, but also masked the spatial arrangement, associations, and historic context of the burials in this portion of Oaklawn cemetery.

Historic Landscape Stratigraphy Summary

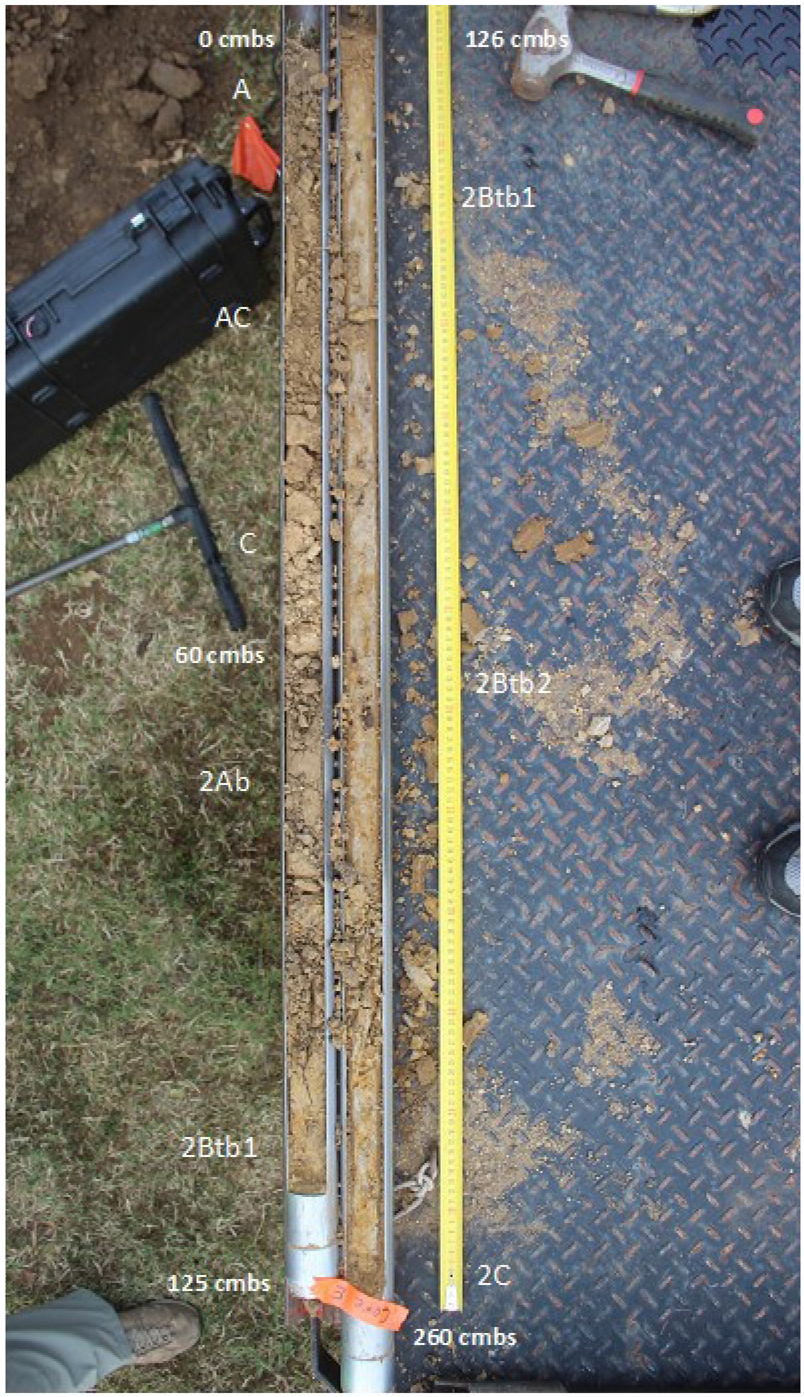
As has been demonstrated in the preceding discussions, the original land surface in the southwestern portion of Oaklawn cemetery has been significantly altered by pedogenic, taphonomic, and anthropogenic processes. In the Sexton area alone, the historic surface soil (A horizon) is buried by over 4 m (13 ft) of anthropogenic fill brought into level and raise the elevation of the low-lying, ponded area. Based on this information, the historic land surface would have been at an approximate elevation somewhere between ~667-672 ft amsl and is markedly lower than the modern surface which is currently at ~680 ft.

The original land surface, now buried by a sequence of varied fill events, consists of a pedogenic argillic A-Bt1-Bt2-C horizonation that gives way to a wetland/pond soil profile as you move south across the Sexton's area. This wetland/pond was fed by a north-south intermittent (ephemeral) stream that is mapped on the 1898 Cherokee allotment and 1914 Claremore historic topographic maps. The wetland/pond exhibits typical characteristics of hydric soil formation due to a long duration of water saturation that resulted in anaerobic conditions. This is evidenced by Fe oxide depletion which manifests as a greenish gray to greenish black (gleyed) coloration in the soil. The thin alternating silt laminated silty sand sediments in the wetland/pond indicate changes in sediment supply that are possibly related to seasonal precipitation. The surrounding soil also exhibits redoximorphic pedofeatures conducive to intermittent water saturation observed by Fe oxide soft masses (yellowish brown) and Mn nodules (black concretions). This is consistent with the mapped USDA NRCS Dennis soil series found on hillslope and interfluve landforms.

In contrast, much of the original (pre-1921) historic landform surface (A horizon) has been removed from the southwest corner (Trench A) of the cemetery. However, the underlying subsurface Bt horizon and substratum C horizon is intact at a depth between ~1.5-2 m (~4-6 ft) below the anthropogenic fill and modern surface. In a few cores, a complete intact pedogenic profile was recovered that recorded an argillic A-Bt1-Bt2-C horizonation (Figure 4.26).

A second intermittent stream flowed through this section of the cemetery. Like in the Sexton's area, it contained saturated soil conditions with laminated, gleyed, silty sand sediments containing a high concentration of historic artifacts (see Chapter 6). The stream, distinguished by the rounded gravelly sandy loam sediments, meanders from the east where it was first picked up in one of the cores in the Clyde Eddy area. The roundness, or degree of smoothing, of the stream channel gravels is indicative of distance of transport in a fluvial setting. This suggests the stream channel during pre-cemetery historic times contained enough water flow at any one time to transport and deposit the coarse-grained pebbly sandy gravel by saltation (hopping motion) and suspension load.

This stream flowed westward, likely across the far southwest corner of the cemetery where it connected with the relict stream channel that flowed through the Sexton area. Based on the



*> **Figure 4.26.** Core E illustrating natural soil profile of the Oaklawn Cemetery landform.*

historic topographic maps, both streams flowed south from their junction and eventually into the Arkansas River. The now buried stream in the southwestern portion of the cemetery still flows underground, saturating the burials and surrounding fill sediments.Based on the stratigraphic profiles, the historic surface in this part of the cemetery was similar to that in the Sexton area (~ 667-674 ft amsl). The elevation of the modern surface in the southwestern portion of Oaklawn is ~677 ft amsl.

In summary, the pre-1921 historic landform surface in the southern and western portions of Oaklawn cemetery was between 4-13 feet lower than today and consisted of a wetland environment including two streams that followed the toeslope of a gently sloping hill underlain by residuum soil weathered from the Seminole Formation shale (Figure 4.27). The wetland/pond area documented in the Sexton area was fed by a north-south intermittent stream that flowed along the landform in the west end of the cemetery. A second, east-west oriented intermittent stream flowed along the landform in south/southwest end of the cemetery and resulted in a continuous, poorly drained wetland across the entire southern and western edge of Oaklawn cemetery. Late 19th and early 20th century artifacts were deposited in and along these two streams and provide us with direct information on the age of the historic landform surface. To make this portion of the cemetery useable for burial, clayey fill was brought in to fill in these two streams and raise the land surface above the high-water table. The soil characteristics (color, texture) of the first fill episodes is similar to that of the original subsurface soil, suggesting a close source or one with a similar landform and soil substrate. The results from the excavations in the Original 18 area in the southwest portion of the cemetery indicates that this early fill was brought in prior to 1921, as interments from that time

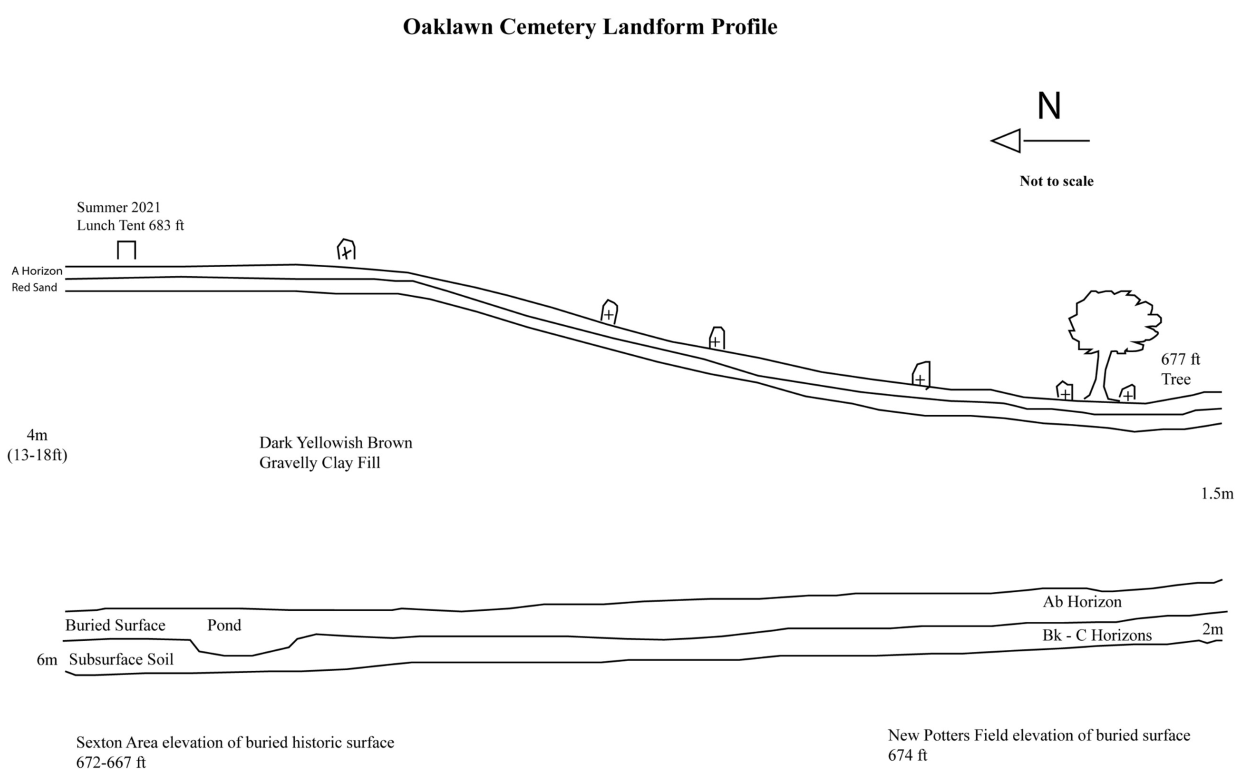


Figure 4.27. *Idealized illustration of the Oaklawn landscape deposits.*

were dug into the fill deposit. This conclusion also suggests the similar deposits encountered in the Sexton's area below the 1930s asphalt road were also likely deposited prior to the 1921 massacre.

Additional fill (A horizon - red sand) was deposited homogeneously across the entire southwestern portion of the cemetery sometime after 1944, but before 1958 (based on historic aerial photos) to raise and level the ground surface. Successive and sustained fill episodes continued over the next decades, resulting in the landform being raised to its current elevation. It is clear from the stratigraphic profile that an enormous amount of fill was required to bury the low-lying wetland areas and intermittent streams before it could be used as part of the cemetery. This significant anthropogenic landscape modification was not previously documented or known prior to these investigations. The specific pedogenic, taphonomic, and anthropogenic processes described above homogenized the natural matrix, intentional fill, and grave fill in places and made interpreting the sediments and spatial relationships in Trench A extremely challenging. In spite of those challenges, understanding these processes has provided invaluable insights into the evolution and use of these portions of Oaklawn cemetery and should serve as baseline information for any future investigations in these areas.

CHAPTER 5

ORIGINAL 18 AREA EXCAVATION RESULTS

by Kary L. Stackelbeck, Ph.D. and Greg J. Maggard, Ph.D.

Test excavations conducted in the Original 18 Area of Oaklawn Cemetery in October 2020 revealed evidence of multiple unmarked burials for which no individual grave shafts were apparent. The extent to which these burials represented a mass grave—perhaps of 1921 Tulsa Race Massacre victims—warranted further investigation. The Physical Investigation Committee proposed a plan to expand the excavation area, expose and document the burials contained therein, exhume them for on-site forensic analysis, and re-inter them within Oaklawn Cemetery in accordance with state law. The proposal was the subject of several meetings with the City and Public Oversight Committee and was ultimately approved on March 9, 2021. This chapter presents the results of the excavation process and initial interpretations based on observations and documentation completed prior to exhumation. Chapter 7 presents the more detailed forensic analysis of the exhumed individuals. Before proceeding with the results of the 2021 archaeological fieldwork, we discuss the history of landscape development in Oaklawn Cemetery and its implications for the discovery of intact burials in under-documented sections, such as the Black Potter's Field.

Natural and Cultural Forces Impacting Depositional Integrity in Oaklawn Cemetery

Chapter 4 of this volume presents a robust assessment of the various ways that natural and cultural forces have altered the landscape in Oaklawn Cemetery. This assessment was developed based on:

1) analyses of soil samples extracted from the Clyde Eddy, Sexton, and Original 18 Areas
2) detailed documentation of various stratigraphic soil profiles from open blocks excavated in the latter two areas
3) correlating some of the observable patterns in the soil data with limited historic maps and records

Among other details, a 1917 map of Oaklawn Cemetery presents information on the layout of the cemetery at that time, including the demarcation of the Old and New Potter's Fields (see Figures 3.1 and 3.2). As a result of the 2020 and 2021 archaeological excavations and the analyses presented in Chapters 4 and 7, we now know that much of the New Potter's Field appears to have been created by dumping large quantities of fill in the low-lying, swampy areas associated with relict stream channels along or near the western and southern extents before 1917. Many of the artifacts found in the lower fill deposits along the relict stream along the southern boundary of the cemetery likely derived from nearby residential areas between 1890 and 1915, as evidenced by domestic refuse recovered in the southeastern portion of the 2021 excavation block (see Chapter 6, this volume). Dumping of trash was common along streams, rivers, sinkholes, and similar settings—especially prior to the advent of modern trash services.

The natural stratigraphy in the vicinity of the relict stream along the southern edge was likely shallow and may have had areas of exposed bedrock sediments that would have been difficult to excavate. The natural deposits, stream channel, and historic trash midden were capped by subsequent fill episodes that were more specifically intended to raise the land surface—still prior to 1917.

The addition of fill in this part of the cemetery addressed the issue of exposed bedrock sediments and the presence of inundated soils—at least sufficiently to allow for substantial expansion of the area that was rendered available for burial plots by 1917. Indeed, the burials excavated in 2021 in the southwestern portion of Section 20 were emplaced entirely within an artificially-generated horizon consisting of fill, the basal layers of which included domestic refuse as referenced above. This fill originated from a similar type of landform, which made it extremely difficult to differentiate from the natural stratigraphy and grave fill at the time of excavation.

Further landscape alteration came after the burials were emplaced in the southwestern section of the New Potter's Field. From geoarchaeological observations of various soil profiles also discussed in Chapter 4, we were able to isolate the approximate land surface as it existed around the 1920s in this area of the cemetery. Following interment, there appears to have been substantial subsidence in this area of burials. As discussed in Chapter 3, subsidence of graves is common, as it occurs naturally due to the decomposition of both human remains and the coffin that encases them—particularly for historic-era coffins made of wood. Upon deterioration, a wooden coffin may collapse under the weight of the overburden, thus causing an indentation in the ground surface above. In any given cemetery, there may be several "dips" in the ground surface that correlate to underlying burials. The persistently wet subsurface conditions in the southwestern portion of Oaklawn Cemetery appear to have exacerbated this phenomenon.

We documented at least two episodes of additional fill that was brought in—presumably to address this issue of subsidence and perhaps swampy conditions—eventually raising the ground surface to its current elevation. Unlike the deeper fill deposits, these upper zones consisted of "clean fill" that derived from a different type of landform all together. These fill episodes essentially capped the entire area that was excavated in 2021. The full extent of both the lower and upper fill episodes has not yet been documented, but it is likely that they extend well beyond the 2021 excavation block and cover most of the southwest corner.

The presence of substantial fill present throughout the New Potter's Field likely accounts for the signal attenuation observed at and below a depth of approximately one meter by Hammerstedt and Regnier (2019; see also Appendix B, this volume) during ground penetrating radar (GPR) survey. This phenomenon was also observed by Maki and Jones (1998) in their previous geophysical survey in Oaklawn Cemetery. This disruption of the signal is attributed to "conductive soils" (Appendix B, this volume). The depth at which the signal attenuation was encountered comports to the approximate depth at which earlier episodes of fill would have been encountered. The gradiometer yielded positive results in terms of detecting anomalies associated with metal, which can be associated with graves (particularly metal temporary markers). However, given the amount of non-cemetery-related metal objects encountered in the fill deposits during the 2020 and 2021 excavations, it would be challenging to confirm the source of the gradiometer anomalies without excavation. As such, geophysical survey is likely to be of little use in detecting graves in the portions of Oaklawn Cemetery where large deposits of fill have been introduced.

Despite burial of the relict stream channels sometime prior to 1917, the flow of water and seasonal wet/dry cycles throughout the old stream course continue to affect buried sediments in the western and southern portions of the cemetery today. In the Original 18 Area, these natural processes have served to homogenize the original soils, the artificial fill that the burials were dug into, and the fill over the graves, essentially erasing distinctions between them. This homogenization of the soils gave the impression that this area was devoid of individual grave shafts during the October 2020 test excavations. Despite the apparent lack of individual grave shafts, those same test excavations confirmed the presence of several intact burials that had no associated markers. Based on this initial information, we surmised the burials had been interred within a collective—or mass—grave similar to the examples provided in Figures 3.4 and 3.5 in Chapter 3. This assessment was supported in part by an area where artificial steps appeared to have been cut into the west end of Trench A. The expanded excavations in 2021 provided a much larger "window" into the depositional processes in this area of Oaklawn Cemetery and allowed us to refine our interpretations of how—and where—massacre victims would have been interred.

June 2021 Excavations in the Original 18 Area

With the next phase of fieldwork, we expanded the Original 18 excavation area beyond that which was exposed in Trench A and the block around Burial 1. Fieldwork commenced on June 1, 2021. As with the excavation of Trench A in October 2020, this phase began with the mechanical removal of overburden while archaeologists monitored for artifacts, skeletal remains, and changes in soil color and texture that is typically representative of burial shafts and/or the burials themselves (Figure 5.1). This monitored excavation began at the farthest northeastern extent of the possible mass grave as indicated by the soil cores extracted in May 2021, progressed to the south, and then proceeded in rows to the west. Each backhoe row was labeled (1-8) to provide an approximate grid location for the recovery of artifacts from the overburden (Figure 5.2). Representative photographs and drawings of profiles were recorded as the mechanical excavation progressed.

Figure 5.1. *View from above as the backhoe operator removes overburden down to the level of the coffins while archaeologists monitor (Image courtesy of the City of Tulsa).*

As the overburden was removed, the backhoe piled the dirt to the side of the excavation area and a front-end loader shifted the dirt to another nearby location. Crew used rakes to sort through the backdirt to look for diagnostic artifacts, bones, or other materials of interest (Figure 5.3). These were collected and bagged by backhoe row for on-site identification and inventory. Discussion of the non-mortuary items collected during excavation is presented in Chapter 6.

The monitored removal of overburn by backhoe and more detailed exposure of the coffins resulted in the delineation of 34 burials, all but three of which had no headstone or marker (Figure 5.4). Two of the 34 graves are those that were associated with the headstones for Reuben Everett and Eddie Lockard. It should be noted that these burials were not among those that were excavated; only their outlined coffins were exposed.

As with Trench A, most of the expanded excavation area continued to be devoid of evidence of individual grave shafts (as described in Chapter 3) except around the outer edges (Figure 5.5). Among the 34 burials exposed during this phase of the excavation, the overburden for 25 maintained no distinction in soil color, texture, consistency, or artifact distribution that might have otherwise indicated the usual evidence of an individual grave shaft. Nine individual grave shafts were clearly apparent and distinctive around this area as observed during the monitoring phase (see Figures 3.3 and 4.21). Seven other individual grave shafts did not become apparent until the actual burials were excavated and the outlines of the lower part of the shaft was observable around the exposed coffin (Figure 5.5).

Monitoring the southern portion of the excavation block proved particularly challenging due to increased moisture content and homogenized sediments, due in part to the presence of a relict stream channel along the southern boundary of the cemetery. Indeed, upon excavation, several burials displayed evidence of post-depositional movement of remains within their respective coffins (e.g., Burials 16, 17, 19, 27, and 28), likely due water infiltration. For example, with regard to Burial 16, "(e)xcavators noted significant post-depositional shifting of the remains including the left lower leg having moved beneath the right. The decedent's head had also rolled toward the south resulting in several maxillary teeth becoming embedded in the coffin wood (see Appendix C: 45, this volume)." Further, the coffin plate for Burial 16 had migrated from its original position over the chest area to become lodged within the pelvis—something that would likely only have occurred due to displacement by water. Burial 19 was below the water table and had standing water in the grave for much of the excavation process (see Appendix C: Figures 110 and 111). In Burial 28 (see Appendix C: Figures 154-155), it is apparent that the right tibia became dislocated from the lower leg sometime after burial, but the fibula appears to be *in situ*, perhaps due to water infiltration in the coffin. Still other burials had evidence of laminated sediments—typically deposited by standing water—within the coffin.

Beyond new data regarding the presence of a relict stream and continued saturation of the soils in this portion of the cemetery, the 2021 fieldwork yielded additional information regarding the west end of Trench A. In 2020, the outlines of Burials 10, 11, and 12 and possible steps were exposed in the west end of Trench A. Upon further excavation, it was determined that Burial 12 is actually part of Burial 10. With the expansion of the excavation area to the north, Burial 32 was documented (see Figure 5.4). Once the outlines of these burials were better defined, it was apparent that they extended stratigraphically beneath the possible steps that had been interpreted from the earlier test excavations. By widening and extending the excavated trench, we determined

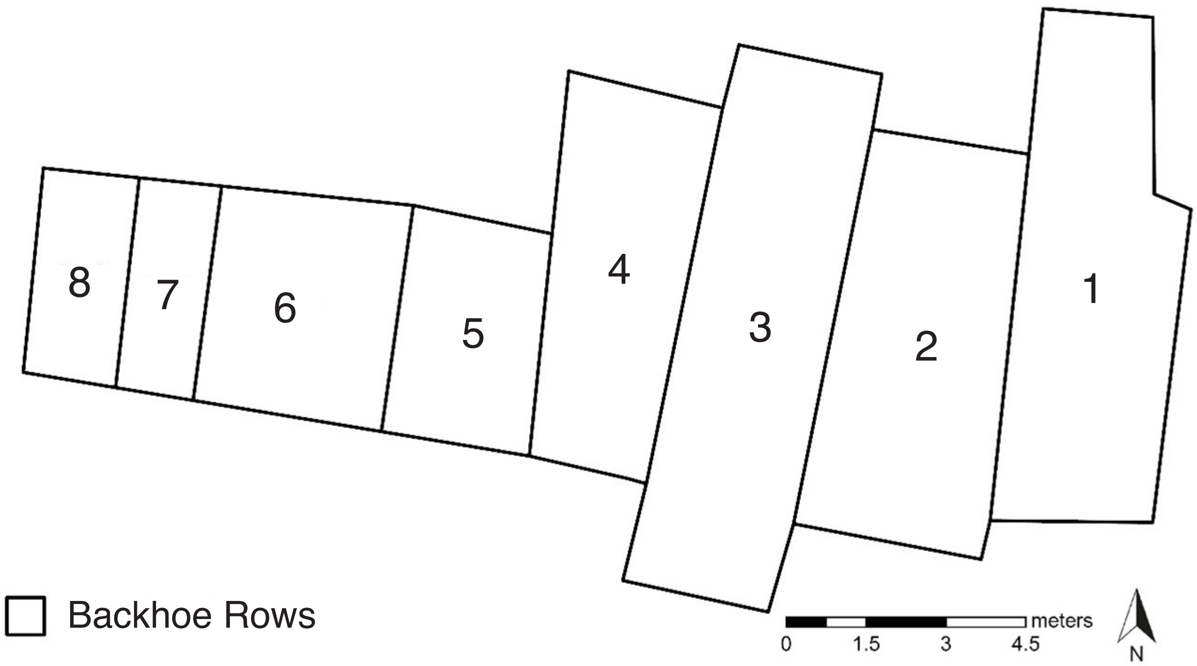


Figure 5.2. *Map displaying Backhoe Rows 1-8 as excavated across the 2021 excavation block from north to south and east to west.*

Figure 5.3. *Crew members rake backdirt to look for diagnostic artifacts, bones, or other materials of interest from the mechanically excavated overburden above the coffins (Image courtesy of the City of Tulsa).*

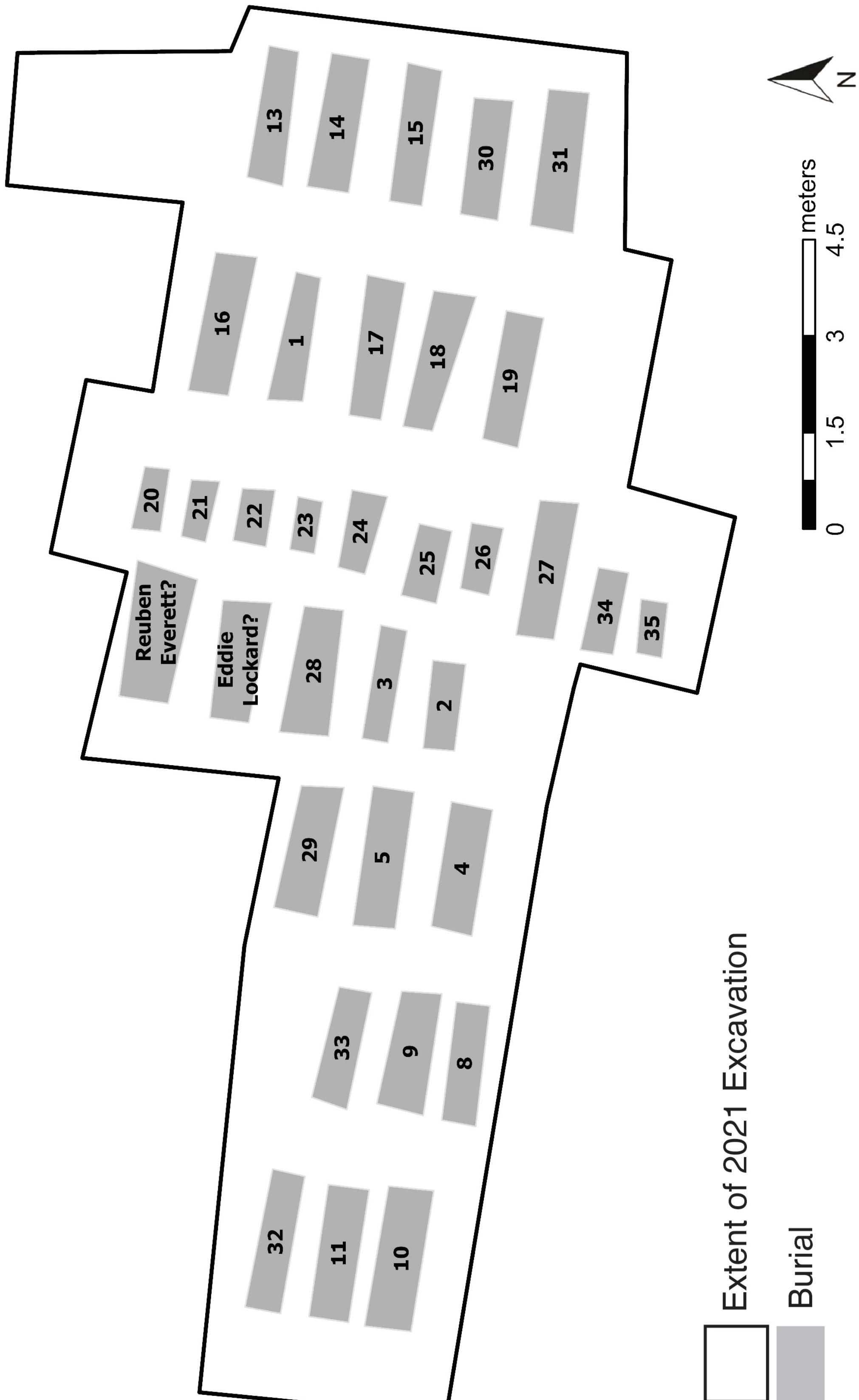


Figure 5.4. *Distribution of burials whose outlines were exposed after the mechanical removal of overburden during the 2021 field season.*

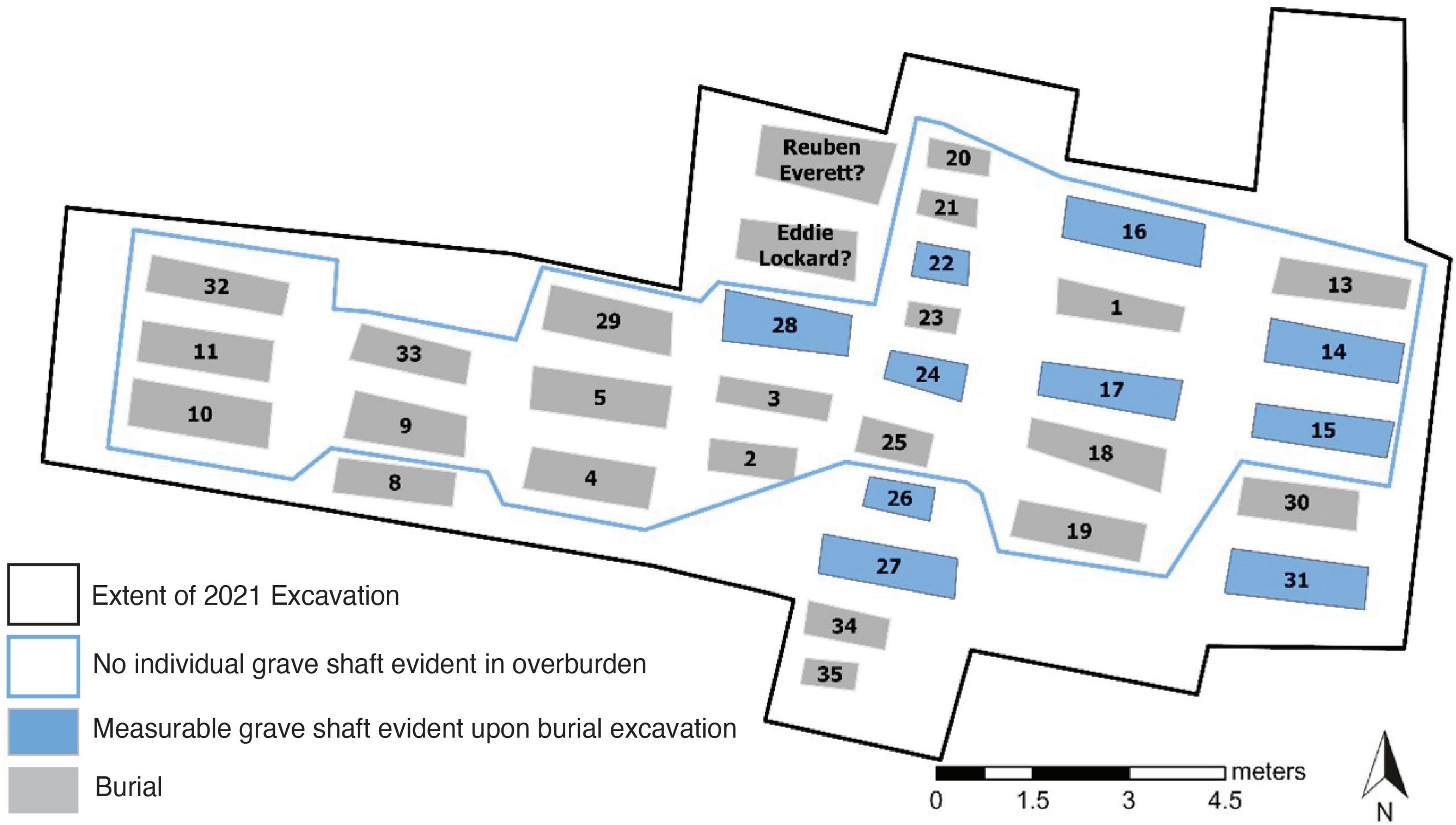


Figure 5.5. *Area within the 2021 excavation block where no individual grave shafts were evident in the overburden above the level of the coffins. Individual grave shafts were apparent for nine graves around this area. Upon excavation, measurable grave shafts were recorded for an additional seven burial containers within this area.*

that the "steps" represented a lens of gravels and clay that had been intentionally dumped, resulting in a sloped layer of fill that post-dates Burials 10, 11, and 32. This area of gravel fill extends to the north and south of the 2021 excavation block for an unknown distance.

The presence of the relict stream introduced post-depositional processes that impacted preservation of some of the remains and caskets in the excavation block, caused the dislocation of portions of some individual skeletal remains within their caskets, and homogenized the soil within and between individual grave shafts in the overburden above the level of the burial containers. These points—taken collectively with the revised understanding of the "steps" at the west end of Trench A—provided new insights on the initial mass grave assessment that had been proposed as a result of test excavations in October 2020. However, they do not subvert the original basis for our excavations in this portion of the cemetery—specifically the historic records on which Clyde Snow developed his interpretation for the possible presence and alignment of massacre victims reportedly interred in the Black Potter's Field (see Figure 3.18).

June 2021 Exhumed Burial Population

As a result of the monitored excavations, 32 confirmed graves were assigned numbers. When combined with the unexcavated graves of two named victims within the excavation area (Reuben Everett and Eddie Lockard), the total burial population was 34 (Figure 5.5). Twenty-one of these graves were excavated. It should be noted, however, that we believe many other unmarked graves exist in Section 20.

The Cardno archaeological team was responsible for the excavation and exhumation of burials that had been exposed during the monitoring phase (Figure 5.6). The methods employed

Figure 5.6. *Members of the Cardno archaeological team excavating two burials (Image courtesy of the City of Tulsa).*

by Cardno—including their innovative documentation processes—are presented in their technical report (Appendix C), as are the detailed descriptions of each exhumed burial.

The historical evidence that led us to conduct excavations in this portion of Oaklawn Cemetery indicated that we should expect to find the burials of 20 African American adult males interred in simple wooden coffins and one infant (Snow 2001; see Figure 3.18). Acknowledging that other victims who did not fit this model might be present, we excavated and exhumed a selection of adult females and subadults. On-site forensic assessments described in Chapter 7 did not yield indications of trauma amongst these individuals. Indeed, the women and children in the burial population appear to have been respectfully buried per common burial practices of the time. As such, barring obvious indications of trauma during excavation, we determined to not exhume additional individuals who did not fit the original model of our expected victims. Should subsequent analysis (e.g, DNA) or other lines of data come to light that cause us to reconsider this assessment, it is possible at a later date to exhume those burials who were left in place during this phase of the investigation.

Among the 21 excavated burials, 19 individuals were exhumed. The careful excavation process was tailored to maximize the ability to conduct highly-detailed *in situ* documentation and recover the remains in a manner that would facilitate respectful transport to the on-site laboratory for forensic analysis (Figures 5.7-5.8). Among the 19 exhumations, five were subadults and 14 were adults, including six females and eight males (Figure 5.9). Brief summary information is presented here, but detailed information on each burial may be found in Appendix C (this volume). The discussion of the excavation results presented here and in Appendix C reflect initial assessments of the exhumed individuals based on observations and data collected at the time of excavation and *in situ* documentation of each of the decedents, his/her burial case, and associated material culture. The assessments presented in Chapter 7 reflect the more detailed forensic interpretation of the exhumed remains.

All of the exhumed burials maintained characteristics and material culture consistent with early 20th–century burial practices. More specifically, 13 of these burials had attributes consistent with the early-mid-1920's. It should be noted that Burials 28 and 29 had coffin fasteners that date as early as 1890, but continued to be used into the 1900's; other aspects of these burials are consistent with the early-mid-1920's. Of particular interest is the fact that Burial 15 was placed directly on top of bottle fragment that dates to 1921. In short, we have good reason to believe that massacre victims could be included among this burial population based only on the dates suggested by the associated material culture. This is an important point given the lack of headstones for the exhumed individuals and limited entries in the cemetery ledger (Appendix I) that appear to correspond to this portion of Oaklawn Cemetery.

The five exhumed subadults were from Burials 2, 21, 22, 24, and 26. Efforts were made to excavate Burial 23, but no skeletal elements were recovered. Burials 20, 25, 34 and 35 were not excavated or exhumed, but their graves were of subadult size. Two of the exhumed children were buried in simple, rectangular wood caskets that may have been handcrafted, rather than being commercially manufactured (Burials 22 and 24). Burials 2 and 26 were interred in wood caskets that may have been commercially produced; both had evidence of handles and Burial 2 had other decorative fittings. The coffin for the subadult in Burial 21 was relatively ornate, consisting of an elliptical wood coffin with a plaque and imitation handles. This coffin was buried inside an outer box.

Figure 5.7. *Members of the Public Oversight Committee, excavation team, and Tulsa's Streets and Storm Water staff pray over the remains of one individual prior to being transferred from the excavation block to the on-site forensic laboratory (Image courtesy of the City of Tulsa).*

Figure 5.8. *Scripture is read aloud while community members and Dr. Phoebe R. Stubblefield solemnly escort the remains of one exhumed individual from the excavation block to the on-site forensic laboratory (Image courtesy of the City of Tulsa).*

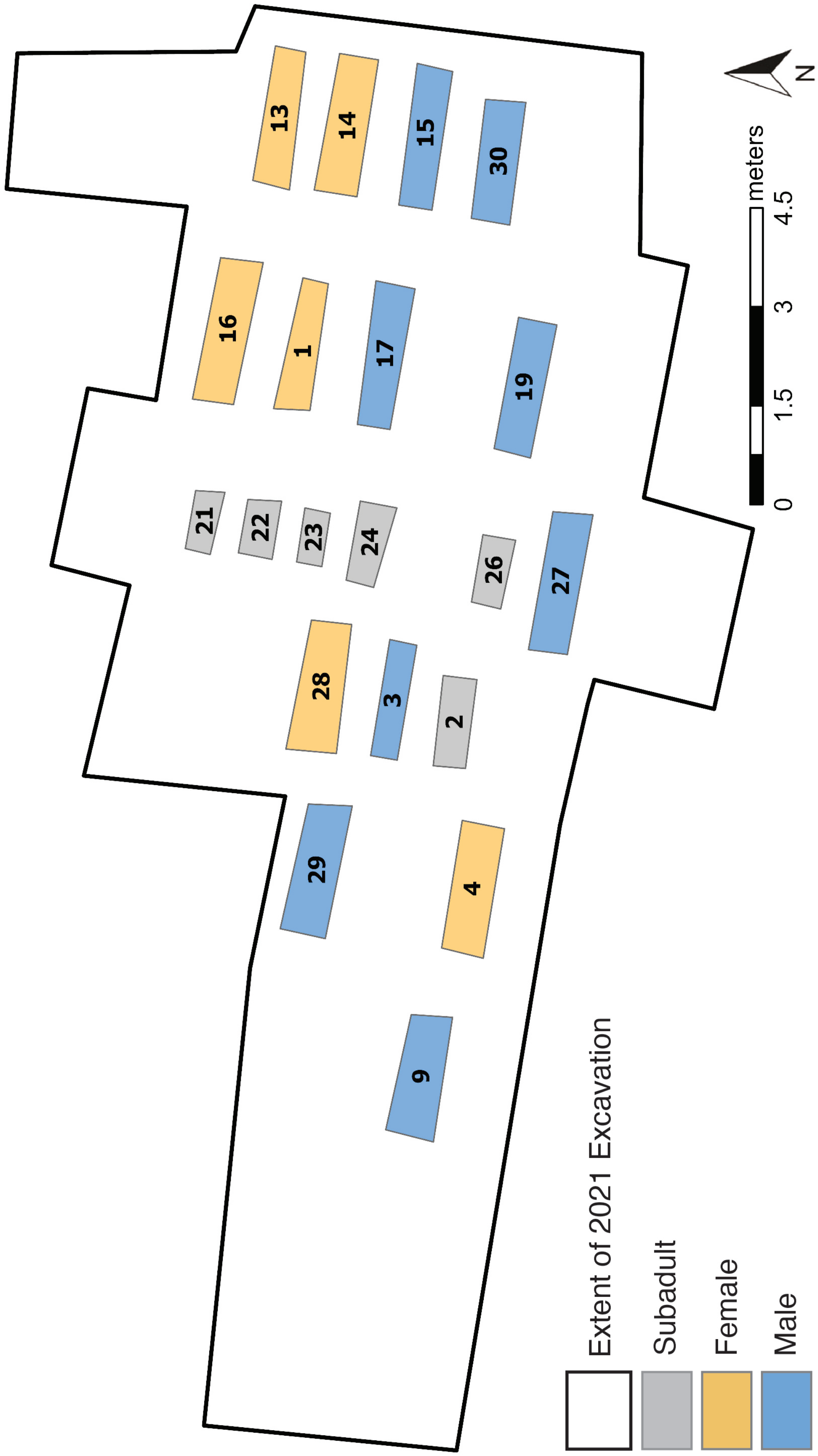


Figure 5.9. *Distribution of graves of exhumed individuals based on adult males, adult females, and subadults.*

Among the exhumed adults, Burials 1, 4, 13, 14, 16, and 28 were those of females, all of whom were interred in nicer coffins or caskets with handles and fittings and each had a coffin plaque. Burial 4 was interred in a casket within an outer box. Two females (Burials 4 and 14) were buried with personal items. Three women (Burials 13, 14, and 16) had limited evidence for clothing. No indications of trauma were observed at the time of excavation or subsequent forensic analysis for any of the exhumed women.

Eight adult males were exhumed as part of the 2021 fieldwork (Burials 3, 9, 15, 17, 19, 27, 29, and 30). All but Burial 29 were interred in simple, rectangular wood caskets that were likely manufactured locally by hand, rather than commercially. The caskets for Burials 3, 15, and 17 are relatively small compared to the others, ranging in length between 176.5-179 cm (69.5-70.5 inches) and in width between 41-45 cm (16.1-17.7 inches). Burial 29 is the only adult male in this burial population who was interred in a nicer, commercially-produced wood coffin, possibly octagonal in shape, with decorative hardware and a coffin plaque. As to the type of wood used to produce the coffins/caskets of the adult males, four were manufactured from wood of the southern, hard pine group, two were from bald cypress, and one from pine (Appendix G). The only indication of possible clothing amongst the males during excavation was the recovery of safety pins from Burial 27, which may have been used to hold close a burial shroud. Further analysis of this individual in the forensic laboratory revealed fabric fragments, perhaps from a belt, in the pelvic area (Chapter 7, this volume).

Burials of Archaeological Interest

Based only on the archaeological data, seven individuals displayed characteristics that were distinctive, particularly in relation to the rest of the burial population (Figure 5.10). It should be noted that the “Burials of Archaeological Interest” do not equate to identification as a massacre victim. We have cause to look closely at these seven individuals based on circumstantial evidence and, in one case, cause of death. We should have a better perspective on these individuals as the investigation moves forward, both in terms of the DNA work and proposed additional excavations.

Traditional Christian-style funerary practices consist of burying decedents with their head to the west and their feet to the east. Burial 15 was interred with his head oriented to the east, rather than the west. This could have simply been a matter of accidental positioning of the coffin during interment, but it could also be an intentional demonstration of disrespectful treatment. Further, his casket was of a relatively small size and was likely locally-produced. The relatively few nails recovered suggests somewhat haphazard construction. The casket for Burial 17 was of similar manufacture and details. An additional critical point about Burial 15 pertains to an artifact that provides a likely temporal marker. From the detailed description of the excavation of Burial 15 (Appendix C, this volume), Cardno reports the recovery of a bottle base with a manufacture date of 1921 beneath the cranium. They indicate “..there was little to no matrix between this glass fragment and the remains which likely indicated the casket was place[d] directly on this piece of refuse at the time of burial” (Appendix C, this volume). This would support a burial date of 1921 for Burial 15.

Burial 19 was interred in a casket that was too small for his stature (see Appendix C: Figure 110). His body was positioned to force him to fit into this burial case, with his head being tilted into a corner and his legs bent to accommodate the smaller container. This could be an

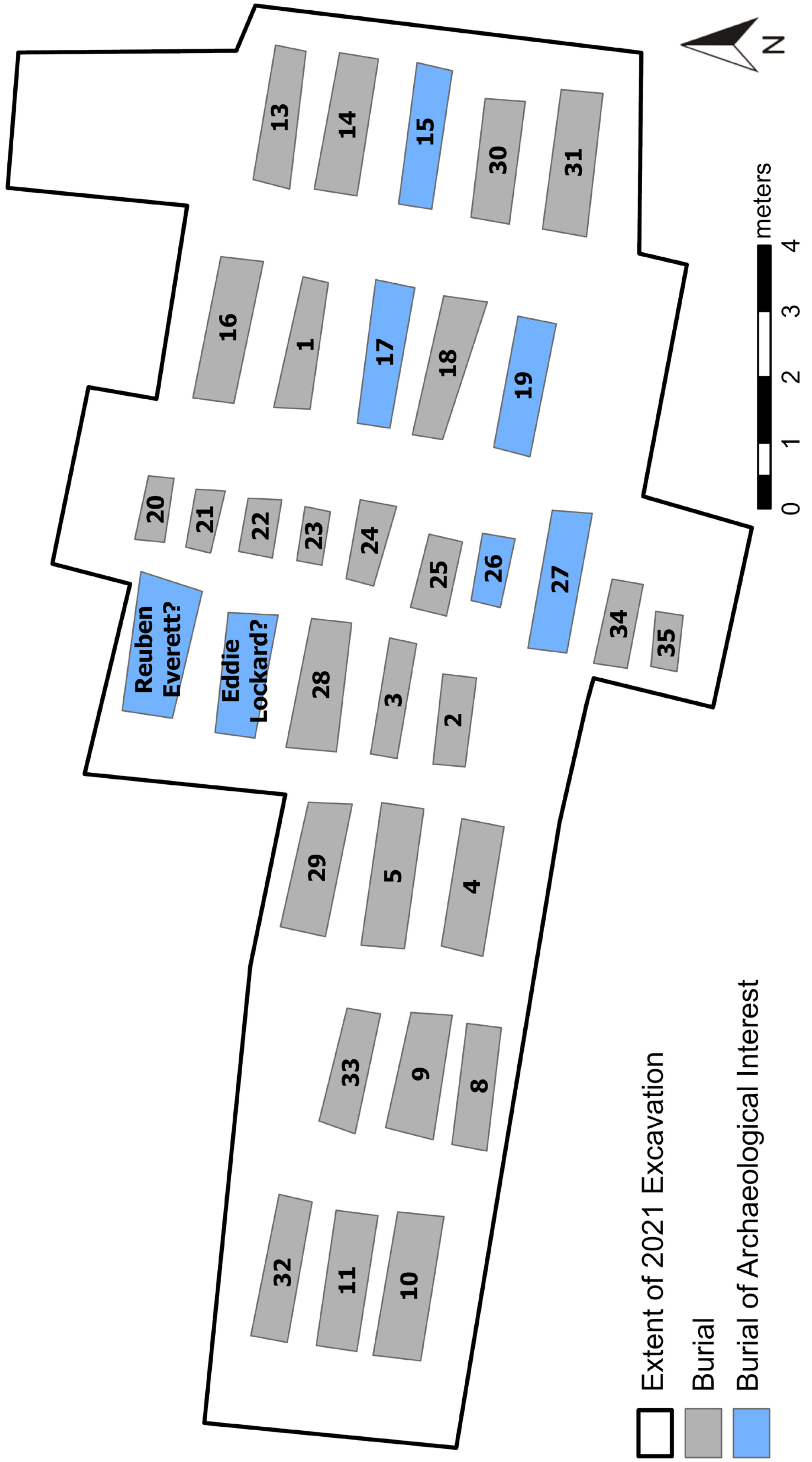


Figure 5.10. *Burials of archaeological interest.*

unintended consequence, but it could also reflect disrespectful treatment of this individual by not accommodating his stature with a more appropriately-sized casket.

Burials 26 and 27 together represent distinctive interments in part because they were at a lower depth than the other burials in their row. These appear to be intrusive, and may have been excavated into and through two previously emplaced subadult graves. Burial 26 is an infant. Burial 27 is an adult male interred in a simple wooden casket. Further, Burial 27 is a gunshot victim from whom two bullets were recovered. The bullets are consistent with those fired from a Colt revolver (Appendix H).

Eddie Lockard and Reuben Everett represent the only two massacre victims for whom markers were erected. Excavations confirmed the presence of individual graves associated with each of these markers, though we did not excavate the burials or exhume the individuals contained therein, so we can provide no further specific details about them at this time.

The distribution of the adult males (see Figure 5.9) and those individuals of archaeological interest (see Figure 5.10) does not fit well with Snow's model, which hypothesized that 21 victims would be interred adjacent to one another in a row or rows (see Figure 3.18). Based on the 2020 and 2021 excavations, we propose that it is possible that the burial pattern may have instead been one where victims were largely interred in available or open, singular spaces between existing graves (excepting the possibility that some individuals may have been buried into and through other graves—as is suggested for Burials 26 and 27). If this assessment is accurate, then it is unlike Dr. Snow's model or any of the modern examples shown in Figures 3.4 - 3.11 in Chapter 3. This does not preclude the possibility of such burial patterns existing elsewhere in Oaklawn Cemetery.

Summary

In sum, the archaeological phase of the 2021 fieldwork achieved several critical developments in this effort to locate victims of the 1921 Tulsa Race Massacre. First, the archaeological phase successfully located 34 burials in an under-documented area of Oaklawn cemetery where the remains of victims are purported to have been interred. Second, we confirmed one gunshot victim based on *in situ* documentation (Burial 27) and six other individuals of archaeological interest who have not yet been ruled out or confirmed as potential victims. Third, the archaeology team recovered and thoroughly documented unmarked burials in a way that facilitated the on-site forensic analysis (presented in Chapter 7). And fourth, we determined that geophysical survey and coring have limited utility for identifying graves in the New Potter's Field based on the substantial alterations of the landscape. These findings will allow for a more tailored excavation and exhumation strategy moving forward with the next phases of the investigation—both in Oaklawn and elsewhere.

CHAPTER 6

NON-MORTUARY ARTIFACTS FROM THE ORIGINAL 18 EXCAVATIONS

Amanda L. Regnier, Ph.D.

This chapter provides an overview of the 1,858 artifacts not affiliated with graves recovered during the summer 2021 excavations in the Original 18 area of Oaklawn Cemetery. The artifacts discussed in this chapter are primarily associated with occupation of the area as an allotment and use of the area as a refuse dump before Oaklawn became a cemetery. A handful of artifacts also reflect the use of this area of the cemetery during the early 20th century. This chapter includes a description of recovery and analysis methods for four categories of artifacts - ceramics, glass, metal, and other materials. The artifact analysis focuses on (a) the distribution of artifacts across the excavated area, (b) the time window represented by these artifacts, and (c) what the types of recovered artifacts indicate about the use of this area of Oaklawn Cemetery through time.

Recovery and analysis methods

Artifacts were recovered opportunistically during excavation with the backhoe in two ways. Artifacts were either spotted by the archaeologists monitoring the backhoe as they were exposed and turned over to the laboratory tent or were recovered by archaeologists raking the backdirt piles after the backhoe had removed soil and deposited it into a pile next to the trench. In order to have a better idea of archaeological context, as the backhoe conducted excavations, the locations of backhoe passes were tracked via a sketch map of the trench maintained in the laboratory tent and artifacts from different areas were assigned to separate catalog numbers. The sketch map was then digitized, seen in Figure 6.1, which will allow for analysis of the density of non-mortuary artifacts across the trench.

Once the artifacts were collected at the laboratory tent, they were bagged by catalog number and then cleaned by members of the field crew (Figure 6.2). Ceramics, glass, and other materials were washed with water and toothbrushes, while metal artifacts were cleaned via dry brushing. The artifacts were left to dry on a drying rack and were analyzed once they were completely dry. The majority of the artifacts were analyzed in the field by Rebecca O'Brien of Cardno. Those artifacts that could not be washed and analyzed in the field due to time constraints were returned to the Oklahoma Archeological Survey laboratory in Norman, where they were washed and analyzed by Amanda Regnier. All artifact photography was done by Amanda Regnier.

During analysis, the artifacts were sorted into four categories: ceramics, glass, metal, and other materials, including architectural materials and faunal remains. Table 6.1 provides a breakdown of recovered artifacts by category. Metal was most common, followed by glass, ceramics, and other materials. Wood samples were set aside for analysis by Jennifer Haney of the Oklahoma Archeological Survey. Those samples will be discussed in a separate section. Artifacts were counted and weighed and information collected from the artifacts were entered

Figure 6.1. *Map of the excavation trench with locations of artifact recovery contexts for non-mortuary artifacts. The numbers represent assigned catalog numbers for artifacts unearthed by the backhoe.*

into a Microsoft Access database in the field. The full catalog of artifacts and data concerning those artifacts is found in Appendix F.

Not all artifacts were retained for curation. When analysis was complete, the analyzed non-diagnostic artifacts were reburied in the excavated trench. This includes undecorated ceramic body sherds and sewer pipe fragments, glass without landmarks or other markings, unidentifiable pieces of metal, metal wire, nails, and can fragments, and unmodified brick and mortar. Table 6.2 provides counts and percentages for reburied artifacts by category, showing that approximately 83% of the recovered artifacts were reburied. Metal has the lowest retention rate; over 99% of metal artifacts were reburied. Referring back to Figure 6.2, the top and left side of the tray are covered in a number of large unidentifiable metal fragments. Most are roughly .25 cm thick and are heavily corroded. These fragments made up roughly 2/3 of the metal assemblage; all were reburied.

Figure 6.2. *Photograph on June 2, 2021 of non-mortuary artifacts from catalog number 18 in the laboratory tent just after they were excavated.*

Table 6.1. Non-mortuary artfiacts recovered from the excavations by category.

Artifact Category	Count	Percent	Weight (g)	Percent
Ceramics	347	18.7	8246.9	16.5
Glass	534	28.7	13625.5	27.3
Metal	972	52.3	27854.2	55.8
Other Materials	5	0.3	161.4	0.3
Total	**1858**	**100**	**49888**	**100**

Table 6.2. Percentage of reburied artifacts by category.

Artifact Category	Total	Retained	Reburied	Percentage
Ceramics	347	160	187	53.9
Glass	534	150	384	71.9
Metal	972	6	966	99.4
Other Materials	5	1	4	80.0
Total	**1858**	**317**	**1541**	**82.9**

Artifacts retained for curation were returned to the Oklahoma Archeological Survey where they were individually photographed, packaged in 4 millimeter thick polyethlene bags with paper tags, and labeled with small 100% cotton bond paper tags adhered with curation stable B72 resin. University of Oklahoma undergraduate laboratory technician Alayjah Thompson assisted with the labeling.

Characterizing the Non-Mortuary Artifact Assemblage

Ceramics

The analysis of the 347 ceramic artifacts in the assemblage collected data including ware type, vessel form and portion, decorative type, color, and motif, and approximate date range. Table 6.3 provides an inventory of the ceramic assemblage by ware type. The ware types present reflect the largely domestic nature of the ceramic assemblage. Individual descriptions of each ceramic artifact can be found in the artifact catalog found in Appendix F. The most common type of ware was whiteware, a refined earthenware first produced in the early 19th century and used primarily in tablewares, followed by ironstone. Ironstone was a thicker, more durable clay body first introduced to the market around 1840 (Samford and Miller 2012). Ironstone was used for tablewares and in toilet wares for use in restrooms. Both remain in production today. Porcellaneous and unglazed bisque wares make up roughly 20% of the ceramic assemblage. Utilitarian stoneware, coarse

Table 6.3. Ceramic ware types present.

Ware Type	Count	Percent
Whiteware	134	38.6
Ironstone/White Granite	67	19.3
Bisque	5	1.4
Porcellaneous Ware	64	18.4
Stoneware	46	13.3
Yellowware	19	5.5
Coarse Earthenware	7	2.0
Ceramic Tile	5	1.4
Total	**347**	**100.0**

earthenware, and yellowware, used in storage crocks, jugs, churns, and mixing bowls make up slightly more than 20% of the ceramics. A handful of ceramic tiles, including an ornate rectangular fireplace tile (Figure 6.3) and small square and hex mosaic tiles were also recovered.

The 129 decorated tablewares in the ceramic assemblage can be used to estimate age range. Table 6.4 provides information on the types of decoration present in the assemblage and dates of initial use and popularity for the decorative types in the assemblage. The most popular decorative category, molded, encompasses two types of ceramics, thick molded ironstones commonly used between 1870 and 1910 and molded thin-bodied whitewares and porcelaneous wares more popular in the first two decades of the twentieth century. Molded ceramics are often also decorated with multi-color overglaze decals, which were introduced in the late 19th century and dominated the ceramic market after 1900. The decals typically had colorful floral motifs with heavy use of pinks, reds, and greens (Figure 6.4). Because they were applied over the glaze, the decals could be damaged by cutlery and cleaning during their use life and later by being buried in the ground. As a result, many are quite faded and motifs and colors can be difficult to discern.

Transfer-printed ceramics were common in the assemblage. Transfer-printed ceramics were created by transferring an inked image from an engraved copper plate to the vessel surface. In most instances, transfer-printing was executed in only a single color. A number of transfer-printed ceramics were creating using excess ink, creating a “flow” process in which the inked designs blurred. Transfer-printing was a widely popular ceramic design motif from its introduction in the late 18th century into the early 20th century. The technique did wane in popularity between 1850

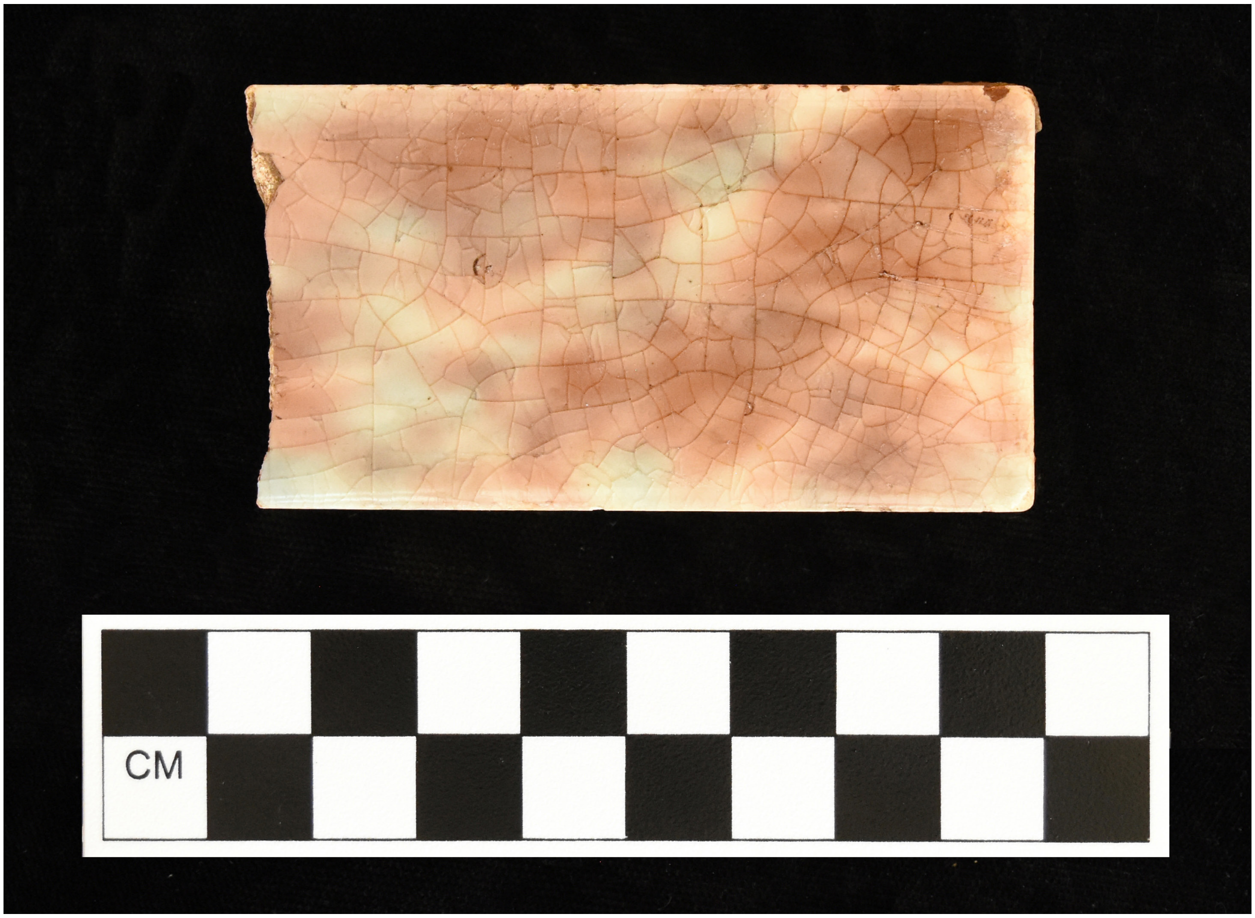


Figure 6.3. *Victorian-style spatterware tile (23.005) recovered during the excavations: This ornately decorated style was in fashion for fireplaces in the late 19th century. This is a portion of a 2 x 6 inch tile that would have been around the firebox or on the floor in front of it.*

Table 6.4. Ceramic decorative types present and their dates of production.

Decoration Type	Date	Peak Popularity	Count	Percent
Molded	1660+	1870-1950	47	36.2
Flow blue transfer-printed	1841+	1890-1904	40	30.8
Multi-color overglaze decal	1875+	1900-1950	28	21.5
Transfer-printed	1783+	1820-1870	8	6.2
Spongeware	1820+	1840-1880	4	3.1
Hand-painted	1775+	1820-1920	2	1.5
Gilded	1760+	1900-1950	1	0.8
Total			**130**	**100.0**

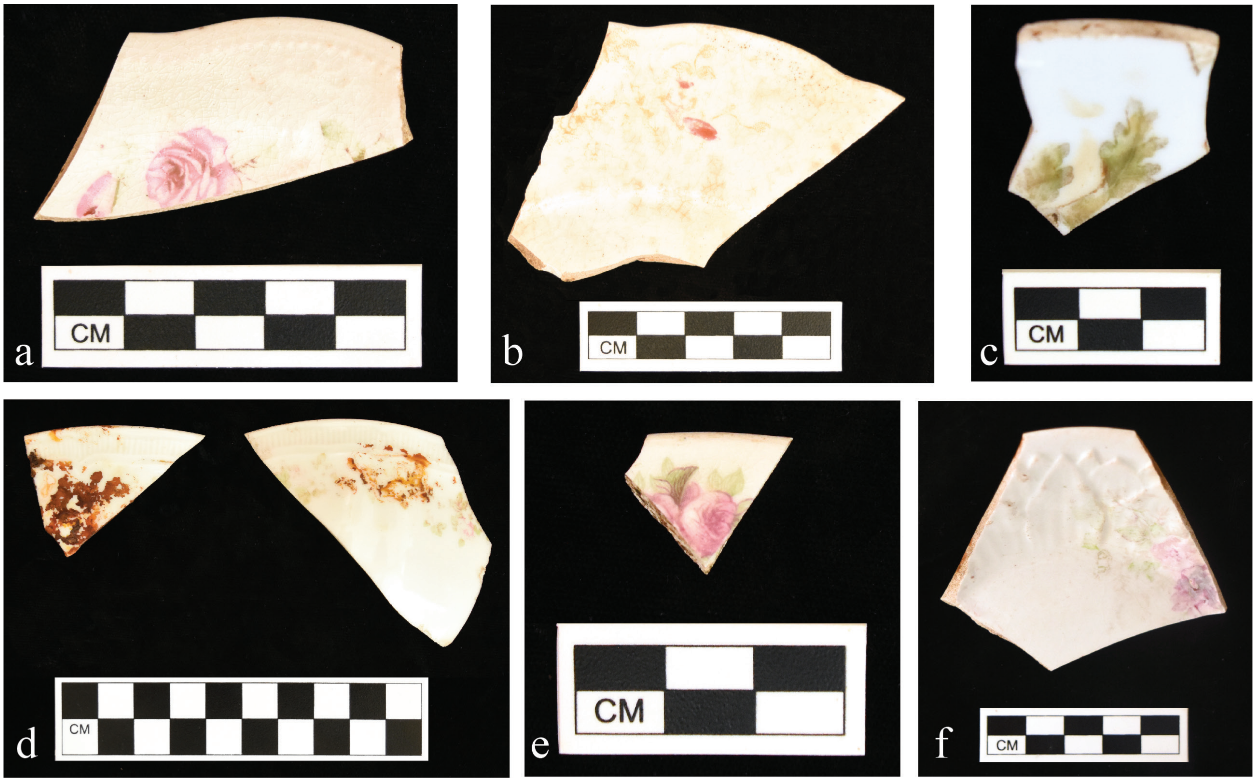


Figure 6.4. *Examples of post-1900 overglaze decal decorated ceramics from the assemblage: (a) Scalloped whiteware plate rim with molded dot pattern and faded pink cabbage rose decal (18.001); (b) Scalloped whiteware plate rim with highly faded red and green floral decal (18.002); (c) Sherd from base of a porcellaneous ware vessel with a green leaf motif (28.001); (d) Exterior of a molded whiteware porcelain bowl with mineral staining and a faded floral decal (18.009); (e) Small whiteware plate rim sherd with a well-preserved pink floral decal on the interior rim (28.003); (f) Molded porcellaneous ware plate rim with a petaloid motif and a faded pink and green floral motif.*

and 1880, but resurged in the late 19th century. For most of the period of peak popularity, transfer-print images consisted of a central motif surrounded by a border motif. A vast number of patterns were produced, and as a result these patterns and their various genres came into vogue and fell out of fashion relatively quickly. Transfer-printed wares can be dated based on a variety of factors, including the genre of the central motif, the design of the border, and the color of the decoration (see Miller and Kowalsky 2021 for greater detail). Figure 6.5 provides a sample of transfer-printed wares in the ceramic assemblage. The earliest of the transfer-printed ceramics, a plate rim executed in green, dates from 1830-1860, and is probably an heirloom ceramic. The remainder of the transfer-printed wares in Figure 6.5 date between 1870-1910. A number of sherds from a number of very similar, if not the same, dark blue transfer-printed pattern also were recovered. The pattern, known as "Mentone" was made by the Alfread Meakin Company of Staffordshire, England from 1897 into the early 20th century. Sherds from several different vessels with this motif or a very similar motif were recovered (Figure 6.6).

Maker's marks represent another category of ceramics that can provide a date range for an assemblage. While many sherds are unmarked, a number of potteries used back stamps that identified the maker, their location, and occasionally the pattern, like the "Mentone" sherds from

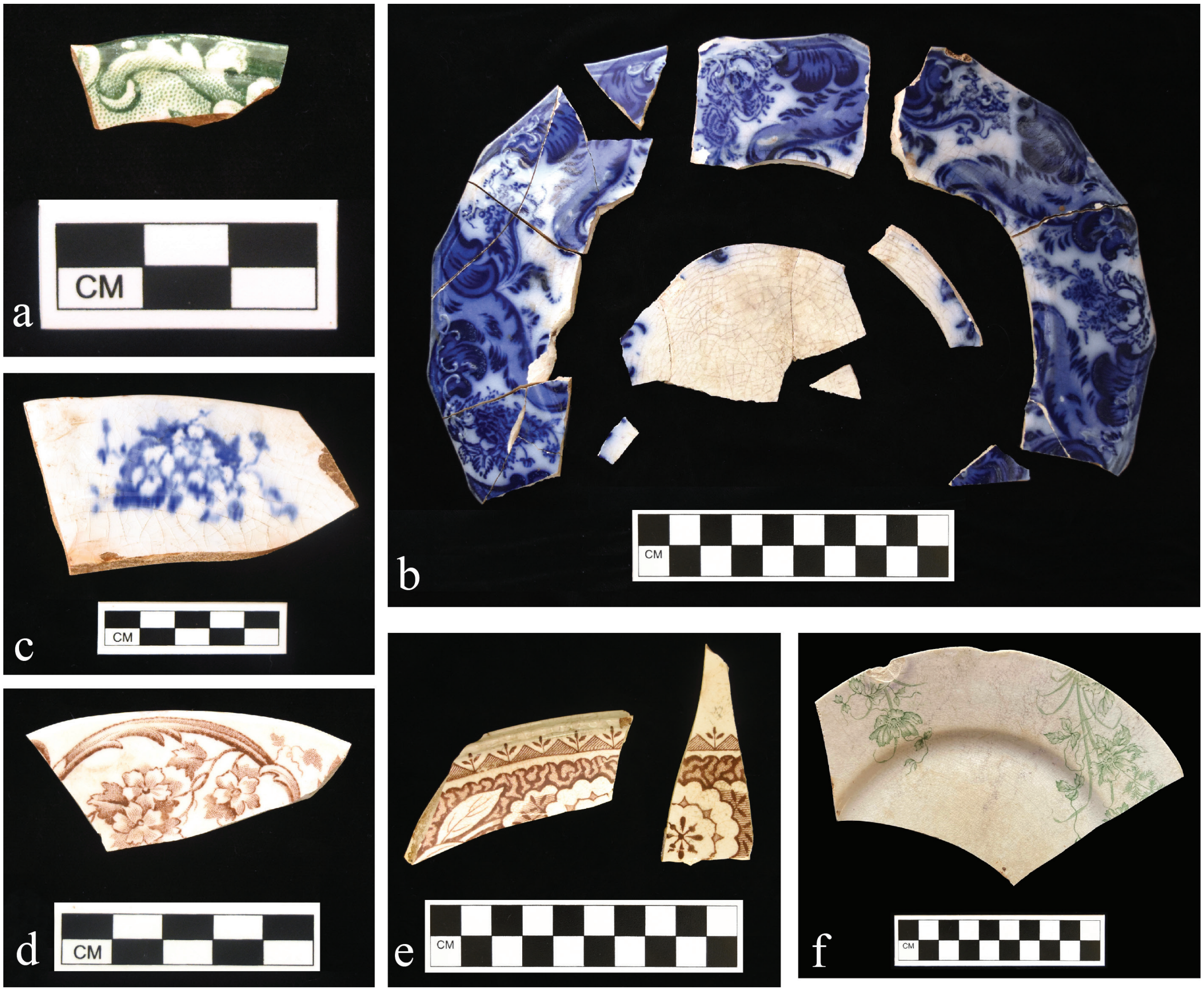


Figure 6.5. *Selected transfer-printed ceramics from the assemblage: (a) A green transfer-printed plate rim (343.002), which appears to be the earliest ceramic in the entire assemblage, dating from 1830-1860; (b) Sherds from a mostly complete flow blue plate from a single context (61.002) which dates from 1890-1910; (c) Rim sherdfrom an ironstone platter with a blurry, poorly executed transfer-printed motif (331.006), which dates from 1870-1900; (d-f) transfer-printed sherds with aesthetic movement style motifs, (d) is brown whiteware (343.001), (e) is brown ironstone (102.003 and 331.007), and (f) is green ironstone (383.001); all date from 1870-1890.*

above. Eight of the sherds in the assemblage with no other decoration also had maker's marks, and two decorated vessels had marks. The larger marks, most of which were identified, are shown in Figure 6.7. Three are unidentified. The identified marks indicate the ceramics were made from 1897-1908. A pair of additional decorated sherds seen in Figure 6.8, included a cut sponge decorated plate rim and a copper luster hand-painted ironstone plate rim likely associated with a tea leaf design, date to the last half of the 19th century (Samford and Miller 2021).

In addition to tablewares, the ceramic assemblage included utilitarian ceramics, particularly in the form of stonewares (Figure 6.9). High-fired stonewares were used for vessels such as crocks, jugs, churns, and mixing bowls can be dated by their glazes. Dark brown Albany slips date to the

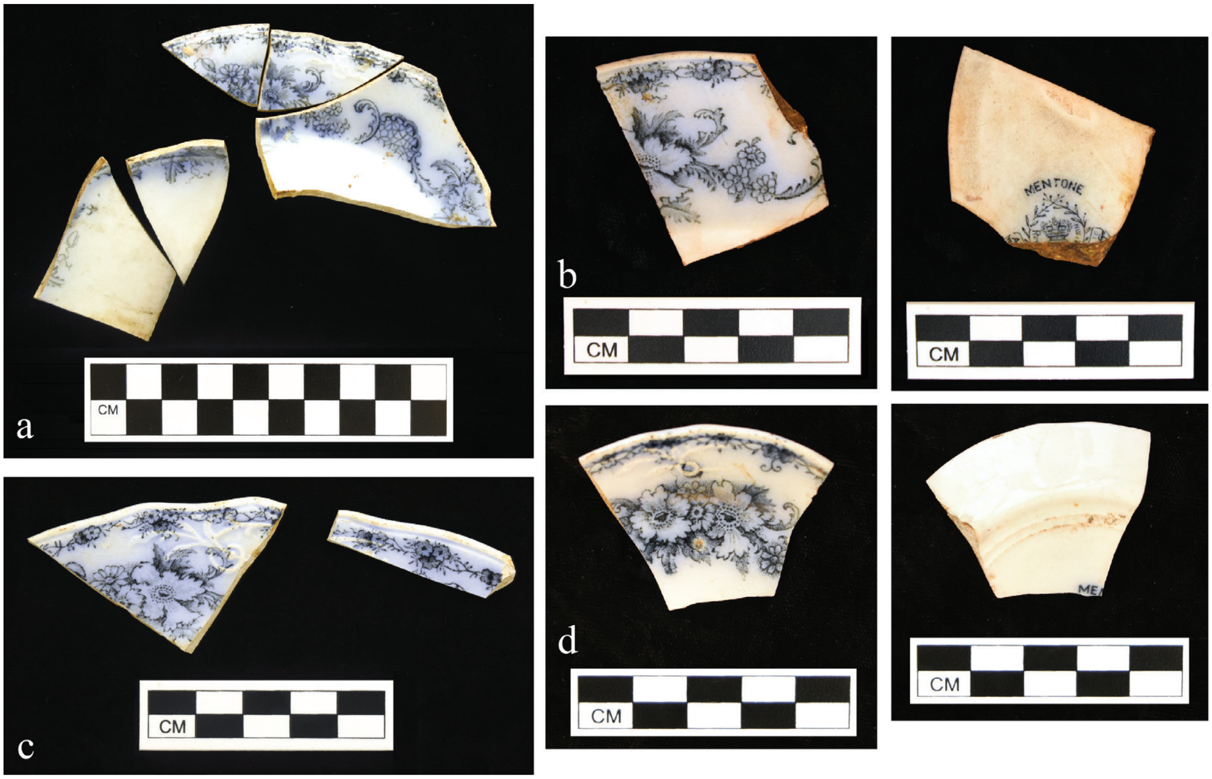


Figure 6.6. *Flow blue transfer-printed ceramics, Mentone pattern: (a) Charger plate (18.005, 23.003, 337.002); (b) Saucer (23.001) with decoration (L) and maker's mark (R); (c) Plate (19.001 and 24.001); (c) Shallow bowl (23.002) showing decoration (L) and portion of the "Mentone" mark (R).*

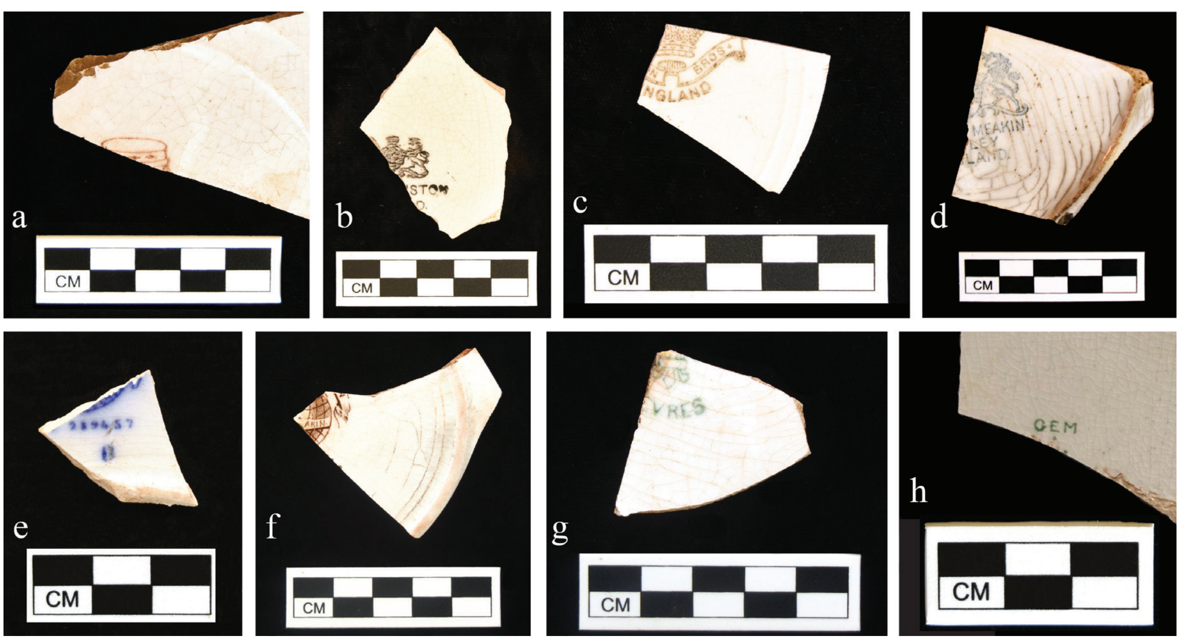


Figure 6.7. *Ceramics with maker's marks: (a) Unidentified mark, ironstone (2.001); (b) Unidentified poorly-executed mark, whiteware (7.001); (c) Johnson Brothers pottery, Staffordshire, England, after 1900, ironstone (18.004); (d) J & G Meakin of Hanley, England, after 1890, ironstone (28.003); (e) Unidentified mark, whiteware (61.002); (f) Alfred Meakin company, 1875-1897, whiteware (343.005); (g) Sevres China Company of East Liverpool, Ohio, 1900-1908, whiteware (380.001); (h) Unidentified mark "GEM", whiteware aesthetic transferware plate (383.001) .*

Figure 6.8. *Other decorated sherds from the 19th century: (a) Cobalt cut sponge whiteware plate rim (3.002 and 5.001), 1840-1900; (b) Copper luster hand-painted ironstone plate rim (50.001), 1850-1900.*

Figure 6.9. *Stonewares: (a) Bristol slip crock (18.006), early 20th c.; (b) Albany slip bowl rim (53.001) with broken glaze, late 19th c. ; (c) Jug (61.001) with Bristol slip exterior and Albany slip interior, late 19th/early 20th c.*

late 19th century, while an exterior with a light gray Bristol slip and an Albany interior dates to the late 19th/early 20th century. Vessels with strictly Bristol slip date to the early 20th century.

The final category of ceramics of note are the seven doll and figurine parts recovered (Figure 6.10). The assemblage included four fragments of dolls and four fragments of single parian ware figurine. The doll parts are from china dolls, which were produced primarily in Germany between 1840 and 1900 and bisque porcelain dolls, which were introduced in 1860 and quickly eclipsed china dolls in popularity. The doll head and the shoulder portion of the Bertha doll are both examples of china dolls (Figure 6.10a,c), which a high-fired and glazed porcelain. The hair portion was likely painted and has since faded but is still visible in the dimples. The Bertha doll is an example of a doll made by the German maker Hertwig & Company for the American market between 1895 and roughly 1907 (Doll Reference 2021). The doll arm (Figure 6.10b) is from a bisque doll, which dominated the market after 1860 and into the 20th century. All of the examples in Figure 6.10 are fragments of dolls that had ceramic heads, shoulders, arms, and legs and cloth bodies, which rarely survive in the archaeological record. The unglazed hollow parian ware figurine (Figure 6.10d) depicts a man in traditional American colonial-era dress. Parian ware, created to be a cheap imitation of marble, was developed in Staffordshire, England and first introduced in 1845.

Figure 6.10. *Ceramic doll and figurine fragments recovered: (a) Hair from a china doll (5.002); (b) Bisque doll arm (61.013); (c) Shoulder portion of a porcelain "Bertha" doll made in Germany from 1895-1907 (337.003); (d) Fragments of a parian figurine of a man in colonial-era dress (20.003, 330.001, and 50.003).*

It was initially a high-end product, but production quickly ramped up and parian wares aimed at middle-class Victorians flooded the market, with the height of production in England occurring between 1850 and 1890 (Slavid 2021). Parian continued to be made in far smaller numbers through World War II. This example likely dates to the late 19th century.

The ceramic assemblage from the excavations in 2021 is dominated by a variety of types of pottery from the late 19th and early 20th centuries. Looking more closely at the artifacts with shorter time spans of use, this assemblage largely dates between roughly 1890 and 1905. Several of the sherds, particularly the green transfer-printed plate rim (see Figure 6.5) and the cobalt cut sponge-decorated plate (see Figure 6.8) are likely heirlooms, since they would have reached peak popularity in the mid-19th century. The types of ceramics present are what would be expected of an assemblage comprised of domestic refuse, including plates, bowls, cups, crocks, bowls, chamber pots, and even doll parts. The date and the character of the recovered ceramics indicate they were deposited before Oaklawn Cemetery became a cemetery. This is supported by the rest of the recovered artifacts as well.

Glass

The analysis of the 534 glass artifacts in the non-mortuary assemblage collected data including glass color, broad type, container type and portion, manufacturing and finish method, and embossing. Table 6.5 provides a breakdown of the glass colors in the assemblage. Only certain glass colors are of chronological value. Light amethyst-colored glass, which makes up about 7 percent of the assemblage, is the result of the use of manganese as a decolorant in glass recipes. Manganese, which created a slight purplish tint that increased in depth with exposure to sunlight, was used between 1875 and 1918 (Lindsey 2021). Bright (7-Up) green glass is very rare prior to 1900 and almost all examples of this glass are dated to the 20th century. A single bright green glass bottle finish was recovered. Other glass colors have less utility for establishing a narrow date range. Aqua glass of all shades, which makes up 27 percent of the recovered glass, dates from roughly 1800 into the mid-20th century and blue glass colors, at less than one percent, have little chronological utility (Lindsey 2021). Milk glass, which accounts for about 3 percent of the assemblage, was used after 1870 but well into the 20th century. Colorless glass, which makes up just over half of the assemblage, has some utility in dating bottles, being introduced after 1870 and becoming far more common after 1910, but this date range has little utility for tablewares.

Table 6.5. Colors of recovered glass.

Glass Color	Count	Percent
Amber	52	9.7
Aqua/Light Aqua	96	18.0
Bright (7-Up Green)	1	0.2
Cobalt Blue	3	0.6
Colorless	276	51.7
Deep Blue/Deep Green Aqua	47	8.8
Manganese (Light Amethyst)	38	7.1
Light Green/Light Yellow Green	6	1.1
Milk Glass	15	2.8
Total	**534**	**100**

The recovered glass containers can be broken down into three broad categories, including jars, bottles, and tableware, which can then be further subdivided by types (Table 6.6). Container type was identified for 437 of the 534 glass artifacts; just over 70 percent of

Table 6.6. Types of containers and other glass.

Broad Type	Container Type	Count	Percentage
Jars	Canning Jar	77	87.5
	Cosmetic Jar	2	2.3
	Unidentified Jar	2	2.3
	Mason Jar Lid Liner	7	8.0
	Total	88	20.6
Bottles	Condiment Bottle	14	4.5
	Glue Bottle	1	0.3
	Ink/Polish Bottle	1	0.3
	Liquor Bottle	14	4.5
	Medicine/Extract Bottle	22	7.1
	Milk bottle	1	0.3
	Soda/Beer Bottle	12	3.9
	Stopper	3	1.0
	Unidentified bottle	243	78.1
	Total	311	72.8
Tablewares	Compote	1	3.6
	Goblet	1	3.6
	Tumbler	13	46.4
	Vase	2	7.1
	Unidentified Tableware	11	39.3
	Total	28	6.6
	Light Fixture	10	2.3
Total for Identified Glass		**427**	**100**

the identified glass was from bottles. The bottles in the glass assemblage provide information on dating and use of the site. Dating can be determined via a number of aspects of the manufacturing process that leave identifiable marks on bottles, including method of production, method of finish (the technical term for a bottle lip) application, embossing text, and maker's marks, while bottle shapes provide information about activities represented in the assemblage. Table 6.7 provides the counts and dates for bottles with identifiable manufacture methods. About 60 percent of the bottles were made by glass blowers using a hollow rod to blow glass into molds, while the remainder were made with some form of automated or semi-automated machine process. Semi-automated machines like the Owens and press-and-blow machines were introduced in the early 20th century and dominated the bottle market through the 1920s (Lindsey 2021). Fully-automated machines were introduced in 1908, but did not start to eclipse the semi-automated machines until after World War I.

Table 6.7. Manufacturing methods and dates for glass containers.

Manufacture Method	Date Range	Count	Percent
Cup-Base Mold	1880-1920	23	50.0
Machine Made	1908+	10	21.7
Owens Machine	1905-1930	4	8.7
Plate Mold	1840-1920	2	4.3
Post-Bottom Mold	1840-1905	3	6.5
Press-and-Blow Machine	1905-1930	3	6.5
Turn Mold	1880-1915	1	2.2
Total		**46**	**100**

Mold-blown glass bottles had their finishes formed after the hot glass was in the mold via either applying additional glass to form the lip or using a special tool to shape the hot glass into the finish (Lindsey 2021). Bottle machines included the finish in the manufacturing process. Table 6.8 provides the counts for the types of bottle finishes. Applied finishes, which were the exclusive finish type used during much of the 19th century and began to drop off in use by 1875, are completely absent from the assemblage. Tooled finishes, which were first used around 1870 and became the dominant finish type by the 1880s, were present on just over 70% of the bottles. Tooled finishes were used up to the 1930s but dropped off significantly in use with the rise of the various machine-making process after 1910.

Bottle types provide a better idea of activities undertaken by site occupants. The most common type of bottles are medicine/flavored extract bottles. The same form was used for a number of bottles used for medicine and for flavored food extracts. Figure 6.11 includes several examples of medicine/extract bottles. These include a bottle of widely-popular patent medicine

Table 6.8. Finish methods and dates for glass containers.

Finish Method	Date Range	Count	Percent
Tooled	1870-1930	30	71.4
Machine Made	1910+	12	28.6
Total		**42**	**100**

Liquozone, which claimed to be a germicide made with liquid oxygen that could cure a vast variety of ailments from arthritis to malaria. A journalistic inquiry into the patent medicine industry tested a Liquozone and found it to be more than 90% water with small amounts of acids (Adams 1905). This study, which identified other fraudulent "medicines", was a key factor in the passage of the Pure Food and Drug Act of 1906 by the United States Congress. The Liquozone Company was founded in 1898 and appears to have ceased business in 1906 after being exposed as a fraud.

Another medicine bottle (Figure 6.11c), is embossed "Briggs, Pharmacy, Pure Drugs, Tulsa, Okla". The Briggs Pharmacy appears in the 1907 Tulsa city directory at 218 S. Main Street. It does not appear in the 1913 directory (I. Mark Carlson, personal communication 2021). The bottle likely dates after 1907 given the use of "Oklahoma" rather than "Indian Territory," suggesting this bottle was made after Oklahoma achieved statehood. As discussed below, soda bottles in this assemblage made before 1907 are marked "Indian Territory." The bottle also must date before 1913 since Briggs Pharmacy was no longer in business by that year.

Condiment bottles were the second most popular type of identified bottle. This category include containers for various sauces, mustards, ketchups, chows, pickles, olives, and pepper sauces popular in late 19th and early 20th century dining. The various contents of the condiment bottles in the assemblage, sampled in Figure 6.12, can be identified using early 20th century catalogs produced by large glass companies that label their products by use (Illinois Glass Company 1906, 1916, 1926; Kearns Gorsuch 1916). The catalogs from 1916 and beyond are later than the bottles themselves, which is reflected in the fact that many of the bottles depicted in the later catalogs are fully machine made and have different closures than the bottles in the assemblage. Even as manufacturing methods changed, the bottles retained their original forms. The bottles in Figure 6.12 date between approximately 1890 and 1915.

The 14 soda/beer bottles in the assemblage appear to be from a slightly earlier time span than the condiment bottles. Figure 6.13 provides a sample of the bottles; these are all likely soda bottles given the light color of the glass. The Hutchinson-style soda bottle, named for the rubber stopper on a wire used as a closure, was made between 1880 and 1910. The American Bottle Company mark is one of three examples in the glass assemblage; two were made between 1905 and 1909 and the other was made between 1906 and 1917. The Tulsa Bottling Works bottle is marked "Indian Territory," meaning this bottle was made before 1907.

Figure 6.11. *Medicine/extract bottles: (a) Unmarked Blake Variant 1-shaped bottle, cup-base mold made, tooled patent finish (9.002). (b) Patent medicine "Liquozone" bottle embossed (10.001); (c) Philadelphia oval-shaped Briggs Pharmacy medicine bottle, cup-base mold made, tooled prescription finish (18.021).*

Figure 6.12. *Condiment bottles: (a) Colorless, base embossed "V C & C"; (55.001); matches "Taper Oval Olive" bottle in 1906 Illinois Glass Company catalog; (b) Manganese glass; Matches 8 ounce "Triangle Pickle" bottle in 1906 Illinois Glass Company catalog; (c) Colorless cathedral style pepper sauce bottle, base embossed "KGB Co."(61.008); on page 107 of 1913 Kearns Gorsuch Bottle Company Catalog; (d) Colorless ketchup bottle made in the Heinz Glass Factory in Sharpsburg, PA between 1887 and 1895; (e) Colorless 10-sided squat bottle, embossed "H J HEINZ CO PATENTED" on base (5.004); matches preserve bottles in 1906 Illinois Glass Co. catalog and mustard bottles in 1913 KGB Co. catalog; (f) Colorless glass condiment bottle, (23.006); matches "Regal Olive" and "California Olive" bottles in 1906 Illinois Glass Company catalog; (g) Light aqua glass stacked ring-style pepper sauce bottle (340.002).*

Figure 6.13. *Soda/beer bottles: (a) Light aqua Hutchinson-style soda bottle embossed "S" (15.007); (b) Light aqua glass probable soda bottle with American Bottle Company mark, 1905-1909 (20.005); (c) Light aqua glass soda bottle embossed "TULSA" (51.005); (d) Light aqua glass soda bottle embossed "TULSA BOTTLING WORKS, TULSA, IND. TERR." (18.012), pre-1907.*

The liquor bottles in the assemblage are generally small, unmarked flask styles, which have such long use spans they are difficult to date with confidence beyond roughly 1870-1920. The handful of household bottles also have similarly wide date ranges.

The jars in the assemblage include canning jars, cosmetic jars, and other unidentified jars. Canning jars are ubiquitous on archaeological sites from the mid-19th through the 20th century. Because canning jars are made to be reused, there can be considerable time lag between the production of the jar itself and its deposition in the archaeological record. The canning jars in the assemblage were made via a variety of manufacturing techniques with a wide time span, from post-bottom molds to semi-automated press-and-blow machines, to fully machine made. Two jars, shown in Figure 6.14, have narrower date ranges. The aqua jar in Figure 6.14a with the keystone in circle mark dates between 1880-1900 or 1907-1912. The manganese glass jar in Figure 6.14b was made in Sand Springs at the Kerr Glass Manufacturing plant, which used the mark on the base between 1903 and the 1920s, although since the glass contains manganese the date range is narrowed to 1903-1918.

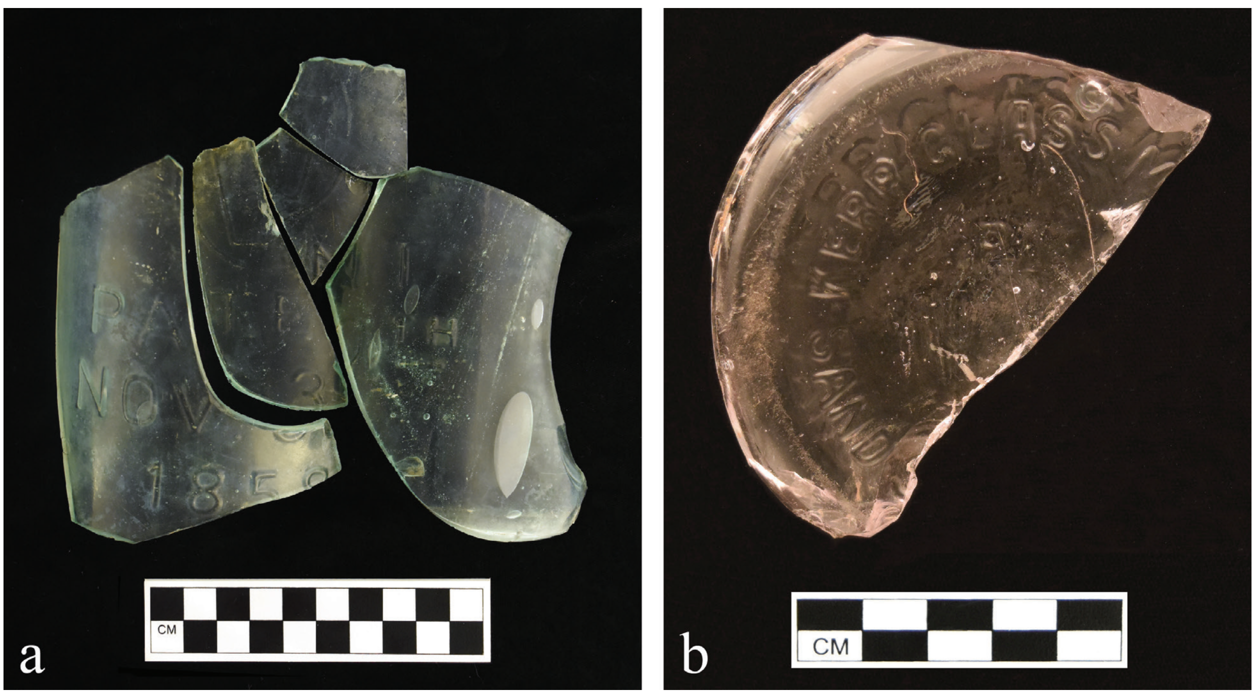


Figure 6.14. *Canning jar fragments: (a) aqua canning jar fragments with embossed keystone in circle and "PATENT NOV 30TH 1858" (18.020). This is the date that the first mason jar was patented. A number of jars included this date even into the early 20th century. (b) Manganese canning jar base with maker's mark for the Kerr Glass Manufacturing Company (330.002) in Sand Springs.*

The final glass category is tableware, which includes tumblers, goblets, vases, and a compote. The most common type of tableware are tumblers, many of which were marketed as containers for snuff and preserves, and then kept as drinking glasses. These tumblers date after 1906 (Wallis 2000). A handful of examples of decorative press-molded glass were recovered. The most notable of these was the base of an Early American Pattern Glass compote with a woman's hand motif on the stem (Figure 6.15). The motif is called "Tree of Life with Hand" and

Figure 6.15. *Colorless Early American Pattern Glass compote stem with Tree of Life and hand motif made between 1879 and 1893 (15.020).*

was made by J.H. Hobbes, Brockunier, and Company of Wheeling, WV from 1879-1893 (Early American Pattern Glass Society 2018).

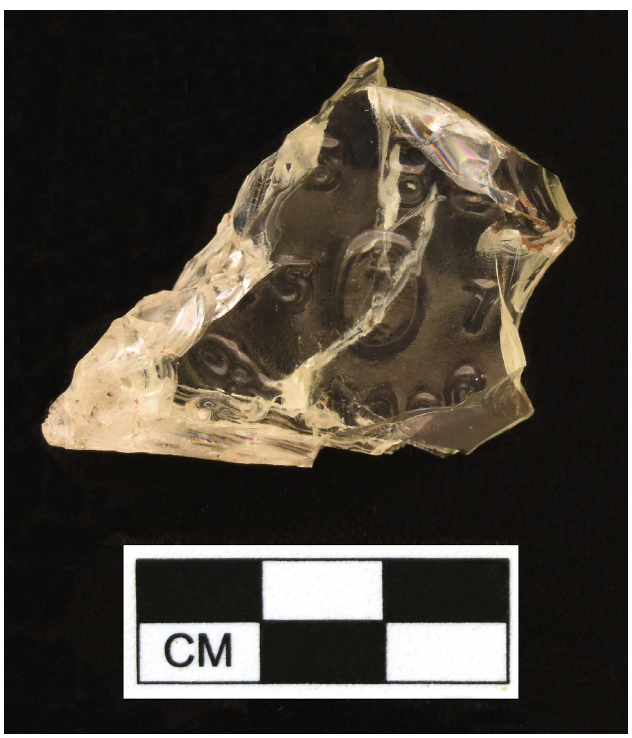


Figure 6.16. *Colorless glass container base with portion of the script marking for Duraglas, made by the Owens-Illinois Glass Company after 1940. (61.012).*

Like the ceramics, the glass artifacts are indicative of domestic refuse. The bottles include food and beverage containers, canning jars for preserving foods, and tablewares for eating and drinking. While the ceramic assemblage largely dated between 1890 and 1905, a small portion of the glass artifacts from after 1905 suggests a slightly longer span, to at least 1910, possibly to 1915. Two artifacts date later than the domestic refuse, a bright (7-Up) green bottle finish with an aluminum screw cap that is likely post 1940 and a glass base with a Duraglas mark (Figure 6.16). Duraglas was introduced to the market by the Owens-Illinois Glass Company in 1940 and was used as a tradename through 1955. Both of these artifacts were likely dropped by cemetery visitors. The remainder of the glass artifacts are domestic trash associated with residential use prior to the creation of the cemetery.

Metal

Metal artifacts made up over half of the total assemblage, with a count of 972 artifacts. Only six of the recovered metal artifacts were retained for curation. Table 6.9 provides a breakdown of the metal artifacts by broad type. Of the recovered artifacts, 662, or 68 percent, were unidentified ferrous metal fragments too rusted and corroded to be identified. Many of these fragments were the large pieces of thick metal discussed above and pictured in Figure 6.2. An additional 50 artifacts,

Table 6.9. Metal artifacts by broad type.

Artifact Category	Count	Percent
Unidentified Ferrous Metal	662	68.1
Hardware	199	20.5
Temporary Marker	50	5.1
Unidentified flat ferrous metal	31	3.2
Railroad spikes	8	0.8
Ferrous metal rods	4	0.4
Cans/lids	3	0.3
Metal straps	3	0.3
Unidentified Cuprous Metal	4	0.4
Handle fragments	2	0.2
Mule shoe	1	0.1
Furniture leg	1	0.1
Spoon	1	0.1
Pocket watch	1	0.1
Grommet	1	0.1
Ferrous metal tray	1	0.1
Total	**972**	**100.0**

or 5 percent, were fragments of metal temporary grave markers encountered with the backhoe well below the modern ground surface.

The hardware category includes nails, bolts, nuts, and wire fragments. All 120 of the recovered nails, 12 percent of the assemblage, were wire nails, which are an excellent chronological indicator of a very late 19th or 20th century date. Wire nails, which are identifiable by their round shank, were first introduced in 1806, but were not substantially available to American consumers until after 1883 (Adams 2002:70). By 1897, most buildings in the U.S. were built with round wire nails rather than square cut nails.

Three of the metal artifacts of interest are shown in Figure 6.17. The brass pocket watch mechanism is unmarked, so it is not possible to establish a date for it. The pocket knife has decorative mother of pearl panels and reads "M. J. Allen Company Tulsa Okla." The M. J. Allen Company was a lumber milling company that appears in the 1909 Tulsa city directory (I. Marc Carlson, personal communication 2021), but it is unknown if they appear in any other directories. The date has corroded from the buffalo head nickel, but these coins were minted between 1913 and 1938.

Figure 6.17. *Metal artifacts: (a) Front and back sides of a brass pocket watch mechanism (5.005); (b) (b) Pocket knife with decorative mother of pearl that reads "M. J. Allen Company Tulsa, Okla" (50.004); (c)Buffalo head nickel with illegible date (372.003).*

The handful of dateable objects in the metal artifact collection align with the dates for ceramics and glass. Like the glass, the metal assemblage dates slightly later than the ceramics, particularly the Buffalo Head nickel, which was made and therefore deposited sometime after 1913. Based on the nails and the nickel, the metal suggests dates from 1883-1915.

Other Artifacts

This category of 69 artifacts includes faunal remains, brick, mortar, charcoal and coal, leather artifacts, and composite artifacts. The faunal assemblage, which makes up just over half of this category consists of 37 specimens, 15 of which are oyster shell. The remainder are large mammal bones with evidence of use as meat cuts, including sawed pork chop bones and various sawed cow bones. Two specimens were retained, a sawed sheep tibia and a portion of a coffin bone, which articulates with the hoof, from a horse. Ten of the artifacts, or 15%, were building materials, including bricks, mortar, and concrete. The one identified brick is marked "TULSA." A similar brick was recovered during texting of the sexton area. Both bricks were made at a brick plant in Greenwood in 1932 (Robison 1980). Sixteen of the artifacts, or 23%, were coal, charcoal, or clinker associated with burning coal, the predominant method of heating homes in the late 19th and early 20th century. The remaining artifacts are associated with clothing, including fragments of leather shoes with brass grommets and a milk glass and metal button. The button, which has a single hole in the center and a looped wire shank that has been lost, is likely a shoe button. The only chronologically sensitive artifact in this group is the 1932 Tulsa brick, which is far later than the domestic ceramic, glass, and metal artifacts. It was deposited later than the bulk of the artifact assemblage, when the cemetery was already in use.

Artifact Distribution, Interpretation, and Conclusion

Mapping and separating the locations of the recovered artifacts as the backhoe moved across the excavation area allowed for a better understanding of the spatial distribution of artifacts. The vertical control of the artifact recovery was not as fine-grained as the horizontal control, but it was sufficient to observe trends in the artifact density between upper and lower strata. Artifacts were scarce in the upper layers of soil and those recovered dated after 1920. Late 19th/early 20th century artifacts were largely recovered at 170 cm (67 inches) below the ground surface, where there was a soil change into a darker soil likely associated with a stream channel. This appears to have been the late 19th/early 20th century ground surface, with fill dirt later added to raise ground level in the cemetery to its current elevation sometime after 1917 (see Chapter 4 for additional details).

During the analysis, it was apparent many ceramics and a single glass artifact from different recovery contexts were from the same vessel or could even be mended. Figure 6.18 provides a sample of some of the cross-mended or otherwise matched artifacts. The remaining cross mends and matches can be found in the artifact catalog. The contexts of the twelve cross mends or sherds from same vessels from different contexts are shown in Figure 6.19. The artifacts that mend are concentrated along the southern and eastern edges of the trench. This matches well with the major concentrations of artifacts, shown in the artifact density contour shown in Figure 6.20. In order to make the artifact density contour map, a center point for each separate context was determined using the previously-established site grid. The number of artifacts from all catalog numbers associated with each context were calculated. Those totals were then used to create the contour map with Golden Software Surfer. The densest concentration of artifacts occurs in the southeast section of the trench. Artifact recovery was highest in the context where the backhoe dug a deeper narrow trench south of Burial 15 to assist with trench drainage in case of rain, suggesting that the densest concentration of artifacts is actually below the depth at which excavations stopped.

In general, the artifacts recovered from the Original 18 area trench are earlier than most of the artifacts recovered from the sexton area. The sexton area artifacts primarily date to the late 1920s and 1930s, with the exception of Feature 3. Feature 3 was recorded in the southernmost edge of the summer 2020 excavations and is interpreted as an area of domestic refuse dating between approximately 1890 and 1915. The artifacts recovered from Feature 3 were originally dumped into the dark and saturated soils associated with one of the two relict stream channels

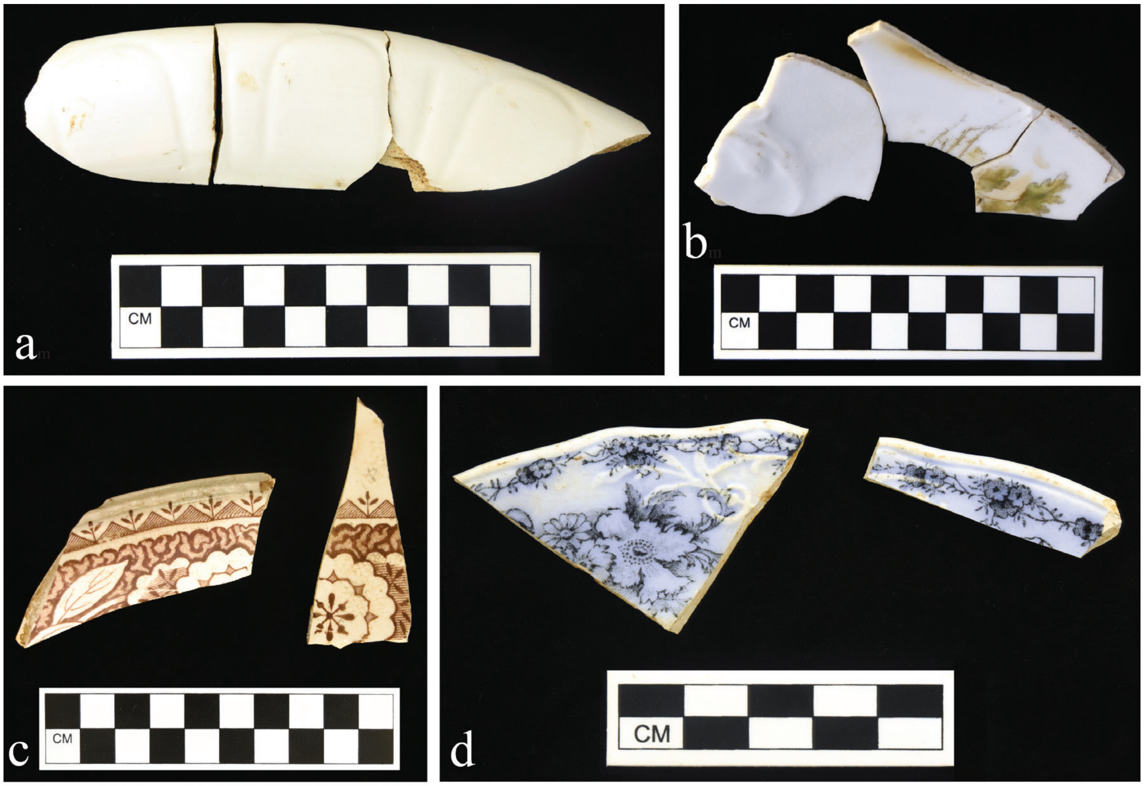


Figure 6.18. *Matching ceramics from different contexts: (a) Molded ironstone vessel rim (9.003, 15.001, 24.002); (b) Molded and decal-decorated porcellaneous ware (18.011, 24.013, 28.001); (c) Transfer-printed sherds (102.003, 331.007); (d) Mentone pattern sherds (19.001, 24.001).*

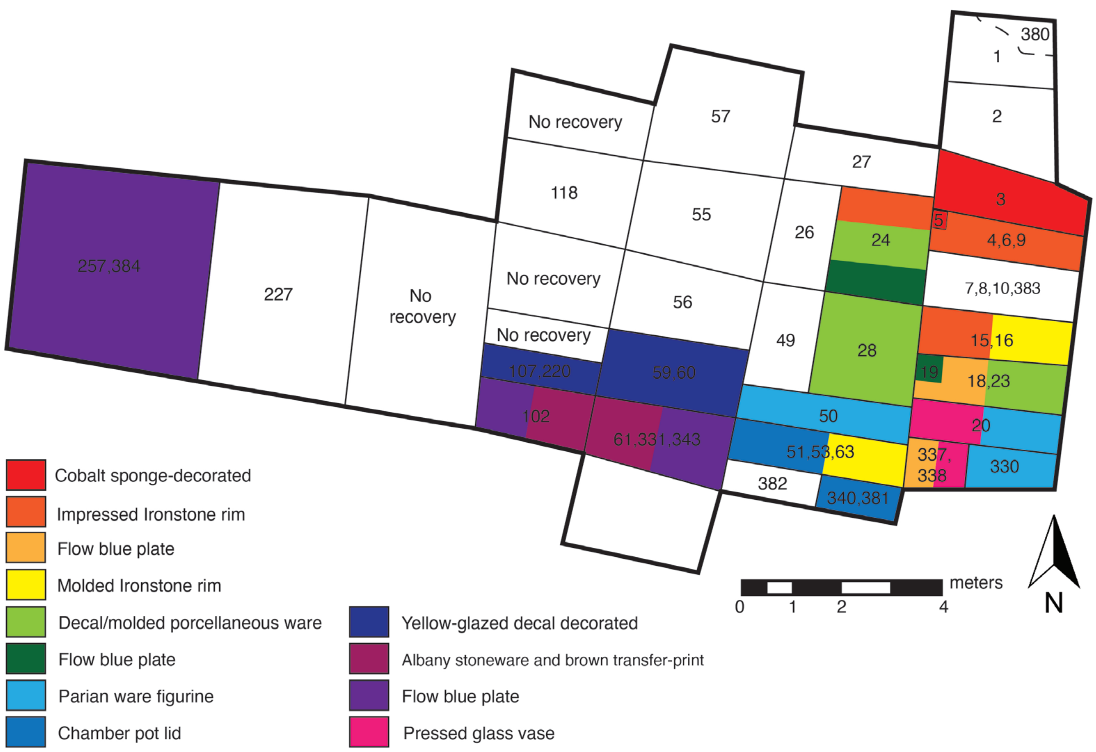


Figure 6.19. *Locations of cross mends or same vessel sherds in the excavated trench.*

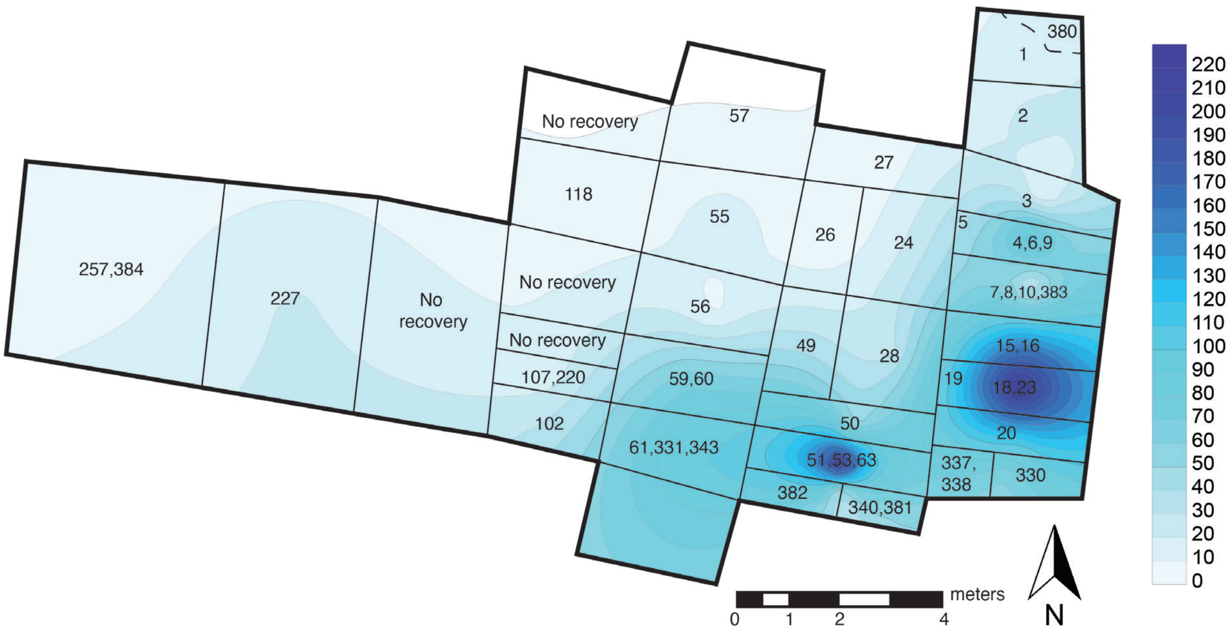


Figure 6.20. *Artifact density contour map by counts of recovered artifacts. The scale on the right side of the map shows the counts represented by each color.*

and swampy areas that characterized the area that would later become the southwest corner of Oaklawn Cemetery. The southern edge of the Original 18 area trench had similar soils and yielded an artifact assemblage that was contemporaneous with Feature 3. Like Feature 3, the artifacts from the southern portion of the Original 18 excavation trench were domestic refuse associated with an earlier occupation concentrated in the area of dark saturated soils along an old stream channel. The bulk of these artifacts are domestic refuse consisting of food and beverage bottles, canning jars and other household bottles, broken tablewares, unwanted clothing and shoes, and exhausted metal. Most of the artifact assemblage was deposited between 1890 and 1915, which predates the substantial land modifications undertaken to raise the level of the ground surface in this portion of the cemetery. Additional later artifacts were likely dropped by visitors and cemetery workers, including some domestic artifacts that appear to have been dropped into grave shafts after the fill episodes.

CHAPTER 7

REPORT OF OSTEOLOGICAL EXAMINATIONS

Phoebe Stubblefield, Ph.D.

Date and Mode of Receipt of Remains

From 01 June 2021 to 25 June 2021, excavations were conducted in Section 20, platted as the Colored Potter's Field (Figure 7.1) of the Oaklawn Cemetery, in Tulsa, Oklahoma, 1133 E 11th St, Tulsa, Oklahoma, 74120. These excavations were contracted by the City of Tulsa, and conducted by the Oklahoma Archeological Survey, with contract assistance from Cardno. This work is part of the search for victims of the 1921 Tulsa Race Massacre (TRM) who were interred in this cemetery. The search area has been previously referred to as the "Original 18" location due to the newspaper documentation of eighteen Black male burials (Figures 7.2 and 7.3). The late forensic anthropologist Dr. Clyde Snow, consultant to the 1998 Tulsa Race Riot Commission, collected 21 death certificates for Black male victims buried in Oaklawn Cemetery (Table 7.1), making the actual number of decedents for recovery a minimum of 21, with an unknown maximum (Snow 2000).

The record of most burials in Section 20 was lost some decades previously (see Appendix I for excerpts from City of Tulsa records of burials in this section). We have compiled the City of Tulsa records and newspaper articles to reconstruct some history for Oaklawn Cemetery. Oaklawn Cemetery was a planned space, conceived of at a time when city cemeteries were meant to beautify and enhance the municipality as a park for the living and the dead. The earliest use of Oaklawn is unclear. Sexton Feely was active in the cemetery before the City of Tulsa was incorporated, according to an interview (*14 November 1920, The Morning Tulsa Daily World*). This article states that the land was established as the city cemetery in 1898 and contained 298 burials then. The City records burials from 1878, and it is possible some individuals are transplants from the Old Cemetery. The Old Cemetery was located at 2nd and Frisco, and new burials were forbidden there by ordinance in 1905.

A report of the Tulsa City Commissioners (*05 May 1905, The Tulsa Democrat*) includes a letter from W.S. Thomas asking to have the grave of his child moved, as the new survey placed a driveway over her grave. Mr. Thomas is probably referring to the 1901-02 survey conducted by City Engineer Gus Patton, described below in The Tulsa Democrat 09 May 1902:

> The City Cemetery
>
> Mayor Blakey was kind enough to call at The Democrat office one day this week with the new plot of the City Cemetery. The work of surveying and plotting was done by Mr. Haggerty and a corps of assistants mostly from Tulsa, and is a neat and creditable piece of work. The plot embraces 20 acres, and is divided into 558 family plots, mostly a size 20X30 feet. Through the center of the cemetery there runs a driveway 40 feet wide from north to south; also a 40

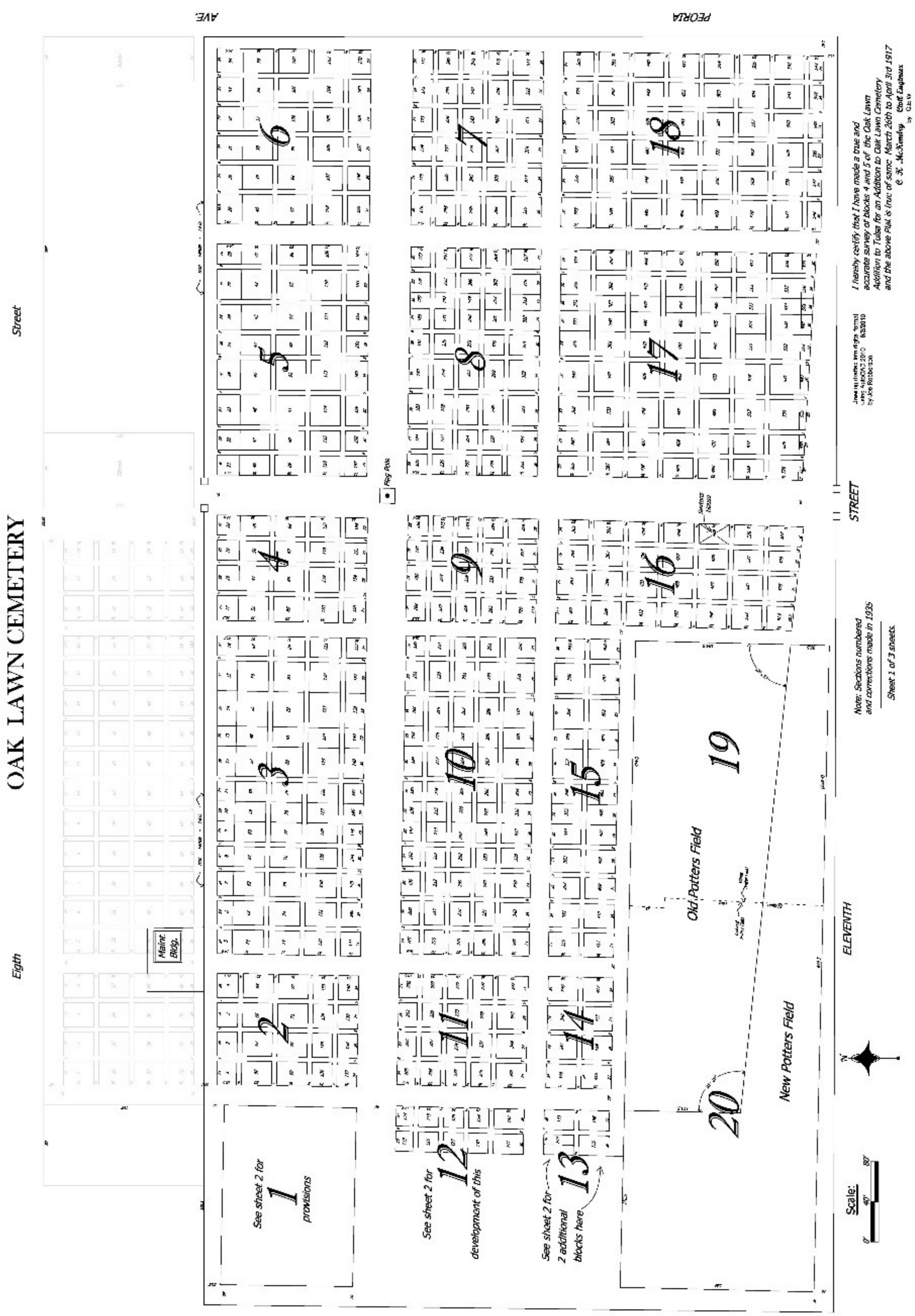


Figure 7.1. *1914-1917 plat map of Oaklawn Cemetery. The sections were numbered in 1935.*

There were 13 other negroes, eight of whom were identified, buried in potter's field of Oaklawn cemetery yesterday. Those who were identified were: Curly Walker, Henry Walker, Ed Adams, Joe Muller, George Lewis, Sam Ree and Ed Howard. The 13 blacks were buried separately and in plain caskets. Some trouble was experienced in getting graves dug, but finally several blacks volunteered for the work.

***Figure** 7.2. Clipping from the Tulsa Tribune 2 June 1921.*

NO GRAVES DUG, BODIES OF 18 NEGROES HELD

CONFUSION AMONG OFFICIALS LEADS TO DELAY

The bodies of 18 negroes, killed in the rioting Tuesday night and Wednesday morning, are awaiting burial at two local undertaking establishments until somebody can be found to dig the graves.

Fifteen of these bodies are at the Stanley-McCune establishment in the garage. They were not embalmed and had to be placed there as a sanitary move, it was said this morning. The other three are at Mowbray's.

An appeal was made by both establishments yesterday to the city officials to have the graves dug in the Potter's field in the city cemetery. Frank Duncan, city atorney, requested that Commissioner O. A. Steiner send some of the street gang out to do the work, but Commissioner Steiner said that he had no men available.

The city furnishes the cemetery and the county is supposed to have the graves dug, Mr. McCune said. An effort is being made today to get some action so that the bodies can be interred.

*<**Figure** 7.3. Clipping from the Morning Tulsa Daily World 3 June 1921, indicating identified male decedents buried in Oaklawn Cemetery.*

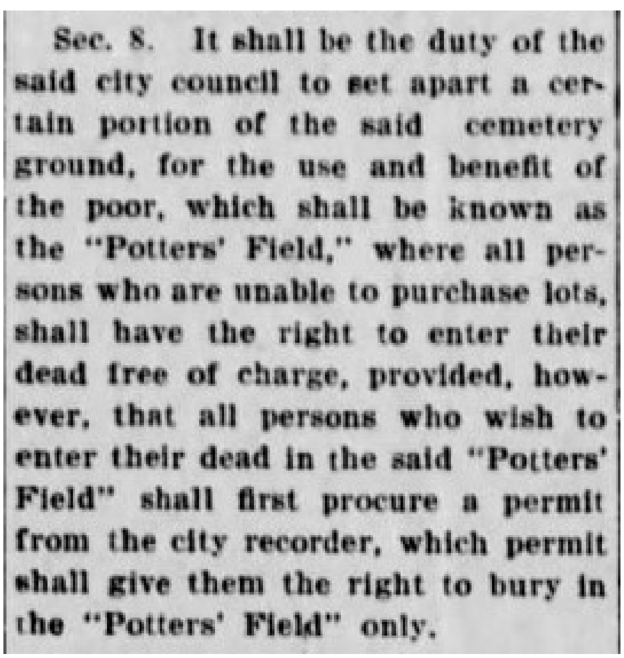
Table 7.1. Black deaths attributed to the race massacre on death certificate, after Clyde Snow (2000).

Name	Race	Age	Birth Place	Cause of Death	Place of Burial	Death Certificate Number
Adams, Ed	Black	32		GSW	Tulsa (Oaklawn)	450
Alexander, Greg	Black	35		GSW	Tulsa (Oaklawn)	455
Barrens, Howard	Black	19	TX	GSW	Gatesville, TX	488
Everett, Reuben E.	Black			GSW	Tulsa (Oaklawn)	469
Howard, Ed	Black			GSW	Tulsa (Oaklawn)	444
Jackson, Andrew C.	Black	40	(TN)	GSW	Guthrie, OK	462
Jeffrey, George	Black	36		GSW	Tulsa (Oaklawn)	468
Johnson, H.	Black			GSW	Muskogee, OK	494
Knox, Commodore	Black	21	MS	GSW	Tarrance, MS	657
Lewis, ?	Black			GSW	Tulsa (Oaklawn)	443
Lockard, Ed	Black			GSW	Tulsa (Oaklawn)	476
Miller, Joe	Black	35		GSW	Tulsa (Oaklawn)	449
Ree, Sam	Black	30		GSW	Tulsa (Oaklawn)	457
Turner, William	Black			GSW	Tulsa (Oaklawn)	477
Unidentified	Black			GSW	Tulsa (Oaklawn)	470
Unidentified	Black			Unknown	Tulsa (Oaklawn)	471
Unidentified	Black			Burns	Tulsa (Oaklawn)	463
Unidentified	Black			Burns	Tulsa (Oaklawn)	453
Unidentified	Black			Burns	Tulsa (Oaklawn)	454
Unidentified	Black			GSW	Tulsa (Oaklawn)	458
Unidentified	Black			Burns	Tulsa (Oaklawn)	456
Unidentified	Black	28		GSW	Tulsa (Oaklawn)	459
Unidentified	Black	Infant			Tulsa (Oaklawn)	445
Walker, Curley	Black	30		GSW	Tulsa (Oaklawn)	452
Walker, Henry	Black	40		GSW	Tulsa (Oaklawn)	451
Wheeler, John	Black	63		GSW	Ft. Smith, AR	461

> foot driveway from east to west. Around the different blocks the driveway is 20 feet wide, and the same size driveway was laid off around the outside of the plot. Also a walk about five feet wide around each lot is provided for, making ample room for passing even with a carriage, through any part of the plot without desecrating the graves of the dead, and at the same time allowing for decorations and shrubbery. Tulsa has a fine cemetery…

The City record in Appendix I indicates Oaklawn Cemetery is organized by Sections, Blocks, Quarters, and grave numbers. Walking (or excavating) the cemetery indicates that some rows were for children only and are narrower than adult rows. The plat map from 1917 has sufficient accuracy in conjunction with the City ledger, to use recorded burials in adjacent blocks as landmarks to locate the northern boundary of the Potter's Fields, which were planned by 1905 Ordinance 113 Section 8 (Figure 7.4). The Jim Crow line separating the Potter's Fields runs from the McRuffin family plot, Section 15, to the pedestrian crossing sign on 11th street, but note the dogleg truncating Section 19 Row 26 on the 1917 plat map (Figure 7.5).

In the 1920 interview Oaklawn Cemetery Sexton Feely indicated that he kept record of every burial. The extant burial records for Section 20 are limited to seven World War I veterans (Raymond Cox, Orlando Gibbs, Wallace Moore, U.C. Van, and three unknown individuals). The ledger includes a Mrs. Shotmeyer, but her inclusion is a typo, she is actually buried in Section 2. The headstones visible in Section 20 today are not documented in the City ledger. Many if not most Section 20 headstones are recorded in a census conducted by the Girl Scouts in 1985 and are also documented in Find-A-Grave (findagrave.com). City Ordinance 113, published in 1905, indicates that a permit from the city recorder was needed for burial in the Potter's Field (see Figure 7.4). Documentation of purchased plots was formalized in 1905, when Judge N.J. Gruber, city recorder, created a form after lots had already been sold with no record (The Indian Republican 09 June 1905).



Sec. 8. It shall be the duty of the said city council to set apart a certain portion of the said cemetery ground, for the use and benefit of the poor, which shall be known as the "Potters' Field," where all persons who are unable to purchase lots, shall have the right to enter their dead free of charge, provided, however, that all persons who wish to enter their dead in the said "Potters' Field" shall first procure a permit from the city recorder, which permit shall give them the right to bury in the "Potters' Field" only.

Figure 7.4. *Excerpt from Ordinance 113, City of Tulsa 1905, The Indian Republican 22 Dec 1905).*

The neighboring Section 19 White Potter's Field provides some information on how burials were added. This section has had regular documented use from 1902 until 1928. The earliest recorded burial is 1883, for John Cotton, which conflicts with the interview account of earliest use, but supports that the cemetery began with over 200 burials. The City record documents 100 burials in a space platted to hold over 1300 burials, or 25 complete rows with about 53 graves each. The grave numbering system is derived from the City record, in which the highest grave number in a Section 19 row is 53. Fifty-three burials per row is probably an over estimate for all rows, as infant and child rows could hold more burials than adult rows. If Section 19 is even half full, most of its burials are undocumented.

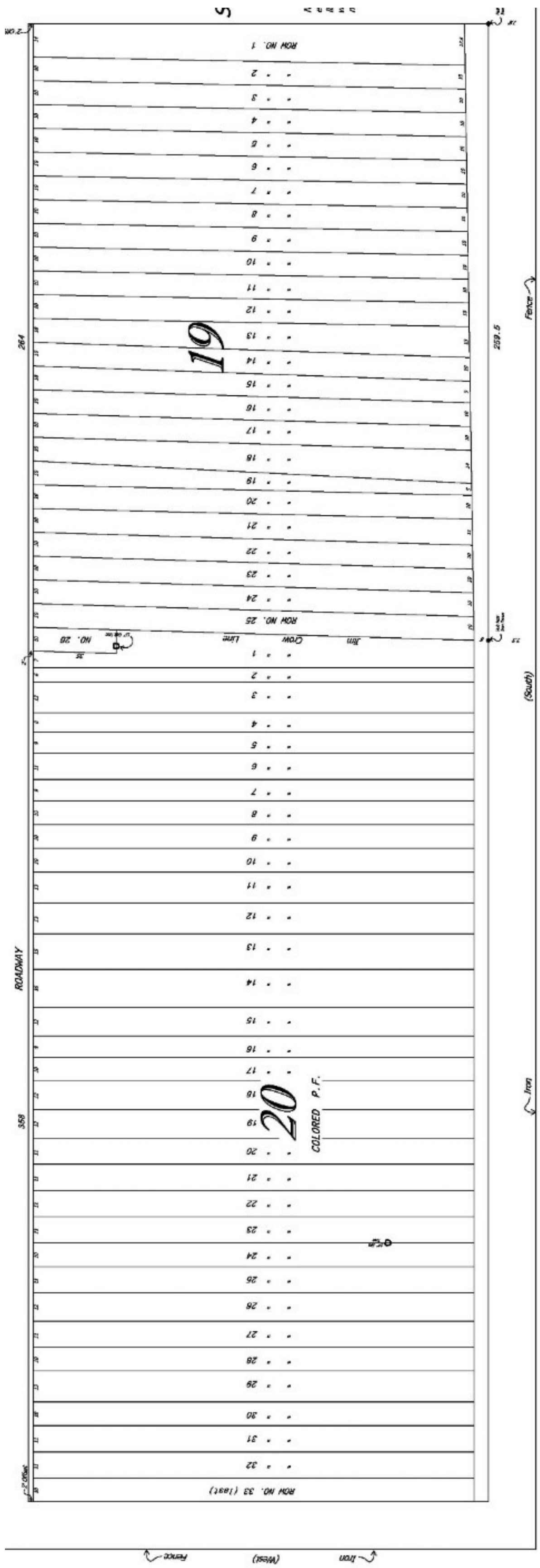


Figure 7.5. *1917 plat of Oaklawn Cemetery Sections 19 and 20. Section 19 is the White Potter's Field, Section 20 the Colored Potter's Field.*

If Sexton Feely was in charge of the burial locations for the Original 18, then the individuals are likely distributed in several rows, not as eighteen adjacent graves. The five burials recorded in Section 19 White Potter's Field for 1921 show that three were buried in Row 14, two from the same month of October, and the third with no date (Figure 7.6). The other two burials were in August, and are in Rows 4 and 16. Five burials seems few, but Rose Hill Memorial Garden opened in 1916, providing additional options (although perhaps not for burial in a Potter's Field). Nineteen twenty-three is the year with the most recorded burials in Section 19, thirteen individuals. The chart (Figure 7.7) of those burials shows some concentration in Row 11 for burials occurring in January, February, March and July. These temporal and spatial examples suggest that some Original 18 burials will share a row, but also indicates that there would have been few contiguous spaces to accommodate eighteen multiple burials in a row.

In the 1920 interview, the cemetery is described as having more than 5000 burials. The sexton was charged to report all burials and cemetery maintenance activity, and according to this interview, had a tight spatial memory, but also kept records. Sexton Feely made a monthly and annual report, which was occasionally published in the newspapers, to the City cemetery committee. Annual reports recovered from local newspapers are recorded in Table 7.2. This data is transcribed from the newspaper sources shown. There is a lack of agreement between City records (see chart in Figure 7.8) and cemetery report annual data. The City records may be a document of receipted burials, while the sexton report likely represents the number of burial permits received. Unfortunately, a 1916 audit indicated that the City was not receiving payment for plots or gravedigging in Oaklawn with any regularity (*The Tulsa Democrat 28 April 1916*). After

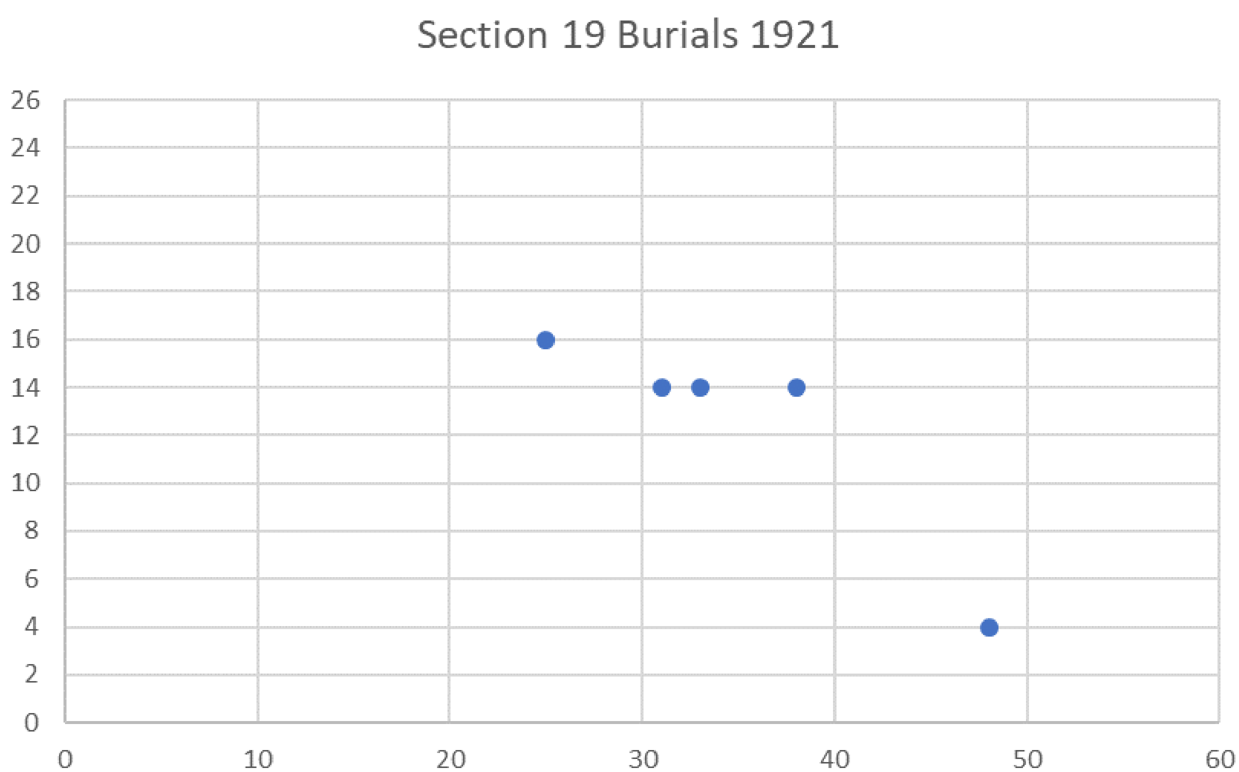


Figure 7.6. *Scatterplot of burials in Section 19 for 1921, from City of Tulsa ledger. Row numbers are the Y-axis, grave number the X-axis. Five burials were recorded, for August and October.*

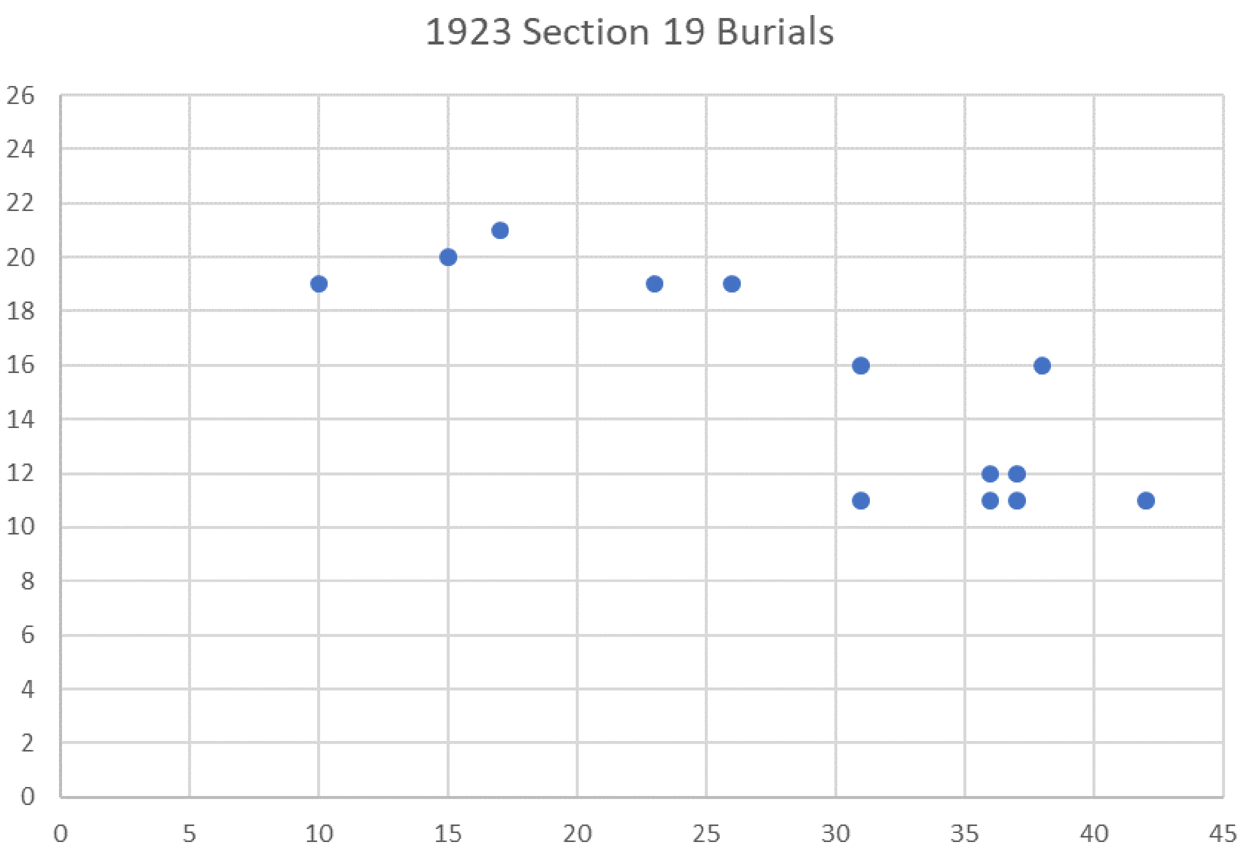


Figure 7.7. *Burials in the peak recording year, thirteen burials in 1923. Row numbers are the Y-axis, grave number the X-axis. Row 11 was used four times, in January, February, March, and July.*

Table 7.2. Burials reported by the Oaklawn Cemetery Sexton, T.S. Feely, for years when annual data was available from the local newspaper.

Year	Total Number	Adults	Children	Black	White	Mexican	Indian
1907 The Tulsa Democrat	166	83	83	7	159	0	0
1910 The Morning Tulsa Daily World	306	270	36	138	166	0	2
1911 The Tulsa Daily Democrat	224	125	119		201	1	0
1913 The Tulsa Daily Democrat	302	150	152	48	253	1	0
1920 The Morning Tulsa Daily World	269	185	84	117	145	7	0

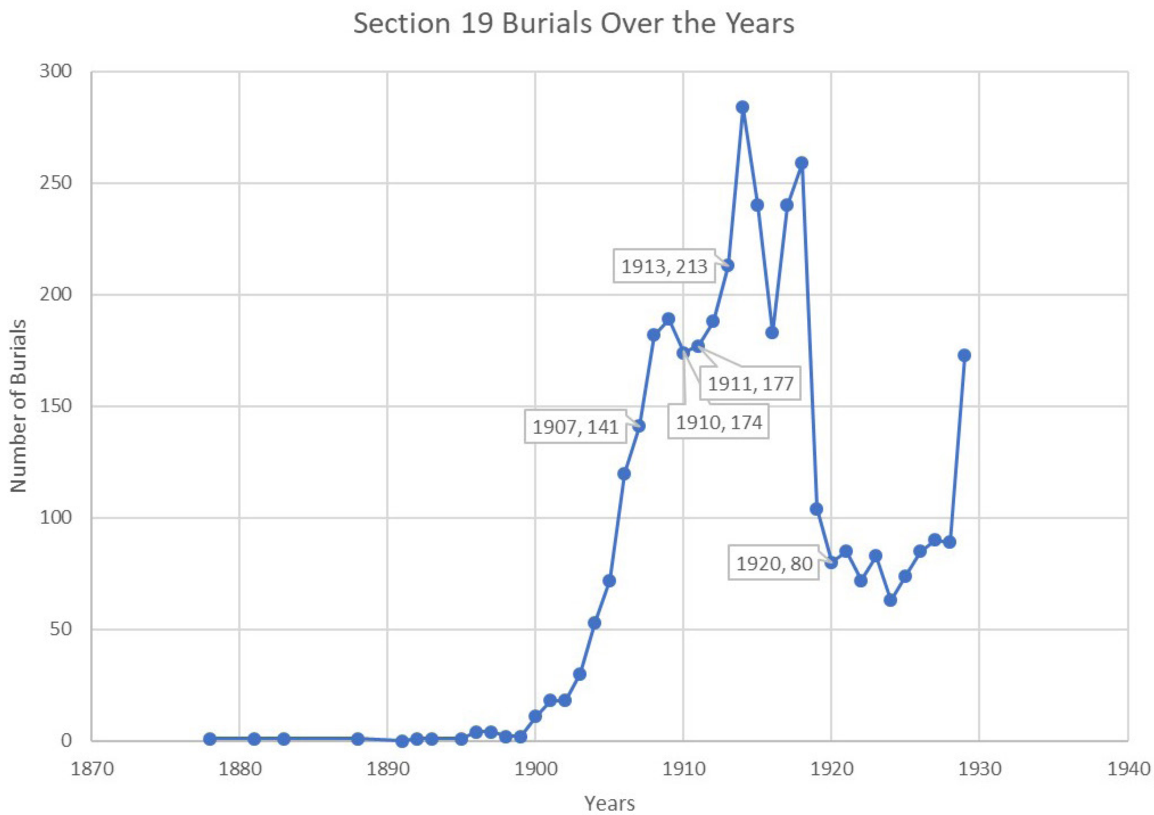


Figure 7.8. *Burials reported by the Oaklawn Cemetery Sexton, T.S. Feely, for years when annual data was available from the local newspapers.*

Rose Hill opened, burial permits were reported for multiple cemeteries, although the distinction was not always made in the newspaper reporting.

The City records 100-150 Colored burials between 1905 (the first year a burial was noted as colored, for Mr. Oddie Morgan) and 1929 (the last year Sexton Feely appears in the City directory). Most of these burials are in the appointed colored Sections 13 and 14. The neighboring Section 15 has many colored burials, and an entire block of Section 4 is owned by a Colored family. By the time of this investigation, the retained records of Colored burials encompassed paid plots and veterans. The location data for the "Original 18" burials is only (and fortunately) referenced in the newspapers.

In cooperation with the City of Tulsa, the archaeology and forensic anthropology components of the Tulsa Race Massacre Physical Investigation Committee performed a subterranean search and skeletal recovery of the "Original 18" area. Based on the information provided in the newspaper accounts and death certificates, burials with decedents demonstrating the following characteristics were of interest:

1) male biological sex
2) burial in plain casket
3) evidence of gunshot wounds and/or thermal damage

Thirty-four burials were exposed in excavations managed by the Oklahoma Archeological Survey and Cardno. Nineteen individuals were exhumed and analyzed for individualizing features and trauma that might be related to a cause of death. Remains were exhumed and placed into padded cardboard cremation trays, then escorted to the field laboratory located in Section 1, in the northwest corner of Oaklawn Cemetery (Figure 7.9). Osteological analysis was performed by the following biological anthropologists:

Phoebe R. Stubblefield, Ph.D., University of Florida, Interim Director of the C.A. Pound Human Identification Lab, Lead Forensic Anthropologist
Angela Berg, M.A., Forensic Anthropologist, Oklahoma Office of the Chief Medical Examiner
Heather Walsh-Haney, Ph.D., Chair and Associate Professor of Criminal Justice, Florida Gulf Coast University
Robert Pickering, Ph.D., Emeritus, Founding Director Museum Science and Management, University of Tulsa
Arion Mayes, Ph.D., Associate Professor, Co-director of the Biological Anthropology Lab, San Diego State University
Shuala Martin, M.A., International Committee of the Red Cross
Kelly Kamnikar, M.A., Michigan State University

The following graduate students assisted:

Isis Dwyer, University of Florida
Samantha McCrane, University of Florida
Nkem Ike, University of Tulsa
Cahjanae Henfield, Florida Gulf Coast University
Leslie Urgelles, Florida Gulf Coast University

Figure 7.9. *View of field lab trailer (left) from road within Oaklawn Cemetery.*

Jennifer Dewey, University of Oklahoma
Aaron Young, San Diego State University

Frequent assistance was provided by the following members of the Public Oversight Committee:

Brenda Nails-Alford
Kavin Ross, Chair

Procedural Notes

Most of the vocabulary used in this report will be accessible to individuals with knowledge of human skeletal anatomy. Anatomical language will be used to name skeletal elements, describe interesting features and the techniques and skeletal features used to estimate age, ancestry, and sex, and report antemortem conditions, and trauma diagnoses. Of particular note is the vocabulary used to describe the teeth in this report. Two systems are used. Of primary use is the Universal Numbering System, which numbers the adult dentition from 1 to 32, starting with the upper back right molar, heading left, then down to the lower left back molar, then returning to the right. Dental inventories are noted with this system. Description of teeth, such as for presence of a carie (cavity) or restoration (a filling, crown, or other technique for restoring function to a tooth), might refer to the universal number <u>or</u> the tooth name (molar, premolar, canine, incisor) and number. Anthropologists refer to the premolars (vernacular "bicuspids") as numbers 3 and 4, such as the "upper left fourth premolar". Anthropological molars occur as first, second, and third. Tooth #1 of the Universal Numbering System is the same as the right upper third molar.

The **Summary and Opinion** section of each burial analysis will contain language that is more generalized and hopefully accessible to a broad readership.

Process

Remains were recorded into the laboratory information management system. This manual system began in the field, as exposed burials were assigned numbers (Bur #) based on when the archaeological features of a burial were revealed. The burial number documents the presence and order of burial features as encountered, based on our expectation that burials may not be encountered, or that they might contain multiple individuals. The Bur # was assigned in the order of encountering these archaeological features, but does not represent excavation of the burial. We assigned numbers to, but did not excavate, burials with above ground markers. In focus on our mission to find those individuals buried in plain caskets, we minimized excavation of burials that demonstrated memorialization features (e.g., plates or handles), although these burials too received numbers. Table 7.3 lists the burials exhumed for laboratory analysis.

If coffin hardware and/or remains were encountered, the remains received an Oaklawn Unknown number (OU#). The remains are unknowns because the burials targeted by our mission and exhumation notice were in locations that had no above ground marking. The OU# was assigned to skeletal remains recovered from a burial. In one instance, no remains were recovered from a burial, so no OU# was assigned.

The third designation is an information management label used by OU Archaeological Survey, the Catalogue number (CAT#). The CAT# was applied to materials encountered during

Table 7.3. Burial #, Oaklawn Unknown #, Field Catalog #, and Date of Escort to the biological anthropology laboratory for each excavated burial.

Burial Bur #	Oaklawn Unknown OU#	Field Catalog CAT#	Date Escorted to Lab
1	1	29	June 8 2021
2	12	45	June 16 2021
3	14	47	June 18 2021
4	13	265	June 17 2021
9	17	323	June 22 2021
13	2	84	June 9 2021
14	11	218	June 16 2021
15	3	106	June 10 2021
16	7	148	June 11 2021
17	10	187	June 15 2021
19	4	120	June 10 2021
21	8	196	June 14 2021
22	5	150	June 11 2021
23	NA	NA	NA
24	6	149	June 11 2021
26	9	9	June 15 2021
27	18	356	June 23 2021
30	19	66	June 24 2021
28	15	304	June 18 2021
29	16	303	June 18 2021

the excavation, including isolated human and nonhuman skeletal elements, entire human burials, coffin hardware, personal effects, and detritus in the burial shafts. Multiple graves were excavated simultaneously, and CAT# were assigned as materials were encountered. Burial #1 was assigned a CAT# in June 2021, despite having been first discovered in the October 2020 test excavation.

The Burial, Oaklawn Unknown, and Catalog numbers were written on index cards and photographed in association with the skeletal remains prior to exhumation. Remains were moved by hand, either as isolated skeletal elements or in blocks of soil, into cardboard cremation trays (Starmark EZ-Fold™), which were internally and externally labeled with the burial and unknown designators.

After covering with a cot drape, the exhumed remains were escorted to the lab by a team of Greenwood community representatives and anthropologists. The technical nature of excavation and laboratory analysis is exclusionary for many Greenwood community members; the escort incorporated the Greenwood community in the recovery and honoring of these unknown decedents. The in no way exhaustive list of escorts of the Oaklawn Unknowns follows:

Phoebe R. Stubblefield
Public Oversight Committee (POC) Chair Kavin Ross
Former POC Chair Brenda Nails-Alford
Councilor Vanessa Hall-Harper
Representative Regina Goodwin
Reverend Robert Turner
Chief Egunwale
Michael Reed
Greg Robinson
Kristi Williams and Billie Foster
Bruce McKelland
Dr. Rodney Goss
Bishop Melvin Cooper and First Lady Joyce Cooper
Funeral Directors Keith and Justin Biglow
Pastor Layla Caldwell
Reverend Joey Crutcher
Minister Jamal Ali
Reverend Davis
Nkem Ike
Roy Owens
Kevin Matthews
Charles Harper
Ebony Easley
Stevie Johnson
Damali Wilson
Cahjanae Henfield
Isis Dwyer
Storm and Sewer Crew Junior Kolbe

With direct assistance from City of Tulsa and State of Oklahoma personnel:

Mark Hogan
Brian Nutt
Angela Berg

Upon arrival to the lab, remains were photographed, radiographed, inventoried, and examined for areas of further analysis. When radiopaque features were noted on the radiographs, the skeletal remains received additional radiographs, cleaning and/or reconstruction to enable retrieval of the item and to improve documentation and analysis of the associated skeletal area.

Infants and children were not part of the target population for establishing the location of the documented Tulsa Race Massacre burial cohort. Infant and child remains were photographed, radiographed for signs of metal-like inclusions or artifacts, and assessed for age as indicator of juvenile status. No other skeletal analyses were conducted on the juvenile remains, as no trauma signs were observed in any of the juveniles exhumed.

Features that would be individualizing in a modern forensic examination, such as dental restorations, dental modifications, skeletal evidence of disease processes, healed fractures in any location, signs of parturition (childbirth), or atypical anatomy, were cleaned, reconstructed, and documented when possible. Three-dimensional scans using the Artec Space Spider© were taken when individuals had intact trauma or potentially identifying dental modifications. At the time of this report many of these scans have not been processed into 3D models.

Ancestry Determination

Each adult skeleton was assessed for indicators of ancestry. The goal of ancestry assessment is to acquire information that may lead to identification and reconnection of a decedent to his or her family. In the modern forensic context, that means that race terms have meaning if the decedent or the decedent's family use race terms to form the identity. The vocabulary of ancestry analysis in the forensic context commingles concepts of "race" and "ancestry." Forensic anthropologists differ on the use of race and ancestry terminology. Dr. Stubblefield defines race as a population label that in the mind of the user combines biological, social, and behavioral concepts. The concepts may not necessarily be shared by the user and the target of the term. The concepts also may not be stable between uses and through time. Dr. Stubblefield uses the term "ancestry" to indicate the closer biological relationships of recent geographic populations, including African, European, and Asian.

We assessed both morphological (shape) and metric (measurement) data for indicators of relationship. In the manner that one expects to resemble his or her cousins, the underlying cranium supports that expectation by having physical features of resemblance. Those physical features may be observable or measurable. While the minimum or maximum number of physical traits is not defined, Hefner (2009) establishes that the use of multiple traits can be statistically successful in determination of ancestry. In the current context, we strove to avoid making one-trait ancestry determinations, despite the temptation to do so in the presence of relatively poorly preserved remains. If preservation was too limited to provide multiple morphological characters or to allow metric analysis, we designated ancestry as indeterminate.

Whenever possible, we used metric analysis to estimate ancestry, relying on the statistical package Fordisc (Jantz and Ousley 2005). We encourage the reader to the *References Cited* section for the technical details. Fordisc is software that utilizes several databases of skeletal measurements to generate statistics on race, sex, and stature. We accessed the Fordisc database of forensic cases, a collection of cranial and postcranial measurements from individuals of identified race or ancestry born after 1930. Unfortunately, Fordisc relies on a combination of race and ancestry populations—American Indian (Southwestern populations), Black, Chinese, Hispanic (a language group mostly represented by individuals from Mexico), Guatemalan, Japanese, Vietnamese and White. We primarily used the database of 19th and 20th Century White and Black individuals, a collection of individuals of European American and African American descent. The software uses a statistical technique called "canonical discriminant function" to determine the similarity of an unknown (the cranium just measured) to the collection of individuals within a database. The analyst using Fordisc is aware that the function must produce a result that then must be interpreted. Fordisc results consist of a population assignment, then numerical values of posterior probability and typicalities F, Chi, and R. The posterior probability indicates how likely the unknown is to be a member of a particular population in the database—the more likely, the closer that number is to 1.0. The typicalities provide a statistical indicator of the likelihood that the unknown is a member of a population.

In this TRM Investigation report, we provide the posterior probabilities and summary typicalities and interpret them in the context of an allegedly sorted burial cohort (individuals buried in the Colored Potter's Field). We are operating under an assumption that a pre-sort has occurred, in that those selected for burial in this location would have identified, or been identified, as Black. However, the lack of burial records for Section 20 leaves room to hypothesize that race designation for this section was flexible.

Genetic Sampling Process

Adult decedents were selected for further DNA analysis, because 1) adults are more likely to have a documented history, such as death certificates or newspaper obituaries, and 2) they had more skeletal material available, especially dental elements, for selection of DNA samples. After the skeletal analysis was completed, the petrous temporal areas of the cranium and several intact teeth were retained for DNA analysis. The DNA analysis will be conducted by an independent laboratory and is not addressed in this report. When preserved, petrous temporals and teeth for burials #1, 3, 4, 9, 13, 14, 15, 16, 17, 19, 27, 28, 29, and 30 were retained as samples for later DNA analysis (Figure 7.10).

Reburial

When all steps of analyses were completed, the burial components—soil, skeletal material, and artifacts—were collated in cloth bundles. The bundles were tagged internally and externally with the burial number, photographed, and reburied in vaults in their original burial position on July 30, 2021.

Condition of Remains and Time Since Death

General features shared by all of the exhumed remains are described here. Specific observations are presented in the individual burial analysis sections.

Figure 7.10. *Evidence bags containing bone and teeth samples retained for DNA analysis.*

Pre-exhumation views indicated that the skeletal remains derived from articulated body burials. The dried bones were earth-stained to a deep brown color and very fragile. There was no odor of decomposition. Fragmentation due to compression from the overlying surface was a consistent feature of the remains. Certain elements were often in large fragments, such as the cranial vaults and femora. Cranial vaults were often collapsed, the facial skeletons were disintegrated with teeth intact and in place, vertebrae and ribs were fragmentary, and long bone epiphyses were in place but fragmented away from the diaphyses. Manual and pedal elements were present but fragmentary. Infant remains were represented by the most durable elements, the petros temporals, teeth, and more rarely femoral diaphyses.

Handling of the bones to exhume and remove soil resulted in increased fragmentation and disintegration. Elements useful for indicators of ancestry, age, and sex, particularly the skull, femora, and humeri, were reinforced with a solution of consolidant (20g Butvar ® B-98 powder dissolved in 16oz of 70% ethanol) if they appeared relatively present or relatively intact prior to exhumation . Inventory of the skeletal remains in each burial was established by type of skeletal element instead of by individual bone, unless preservation allowed for specificity.

Burial 1

Tulsa Race Massacre Investigation Burial Number: 01
Oaklawn Unknown Number: 01
Field Catalog Number: 29

Condition of Remains

These skeletal remains are friable and very fragmentary (Figure 7.11). Burial One was

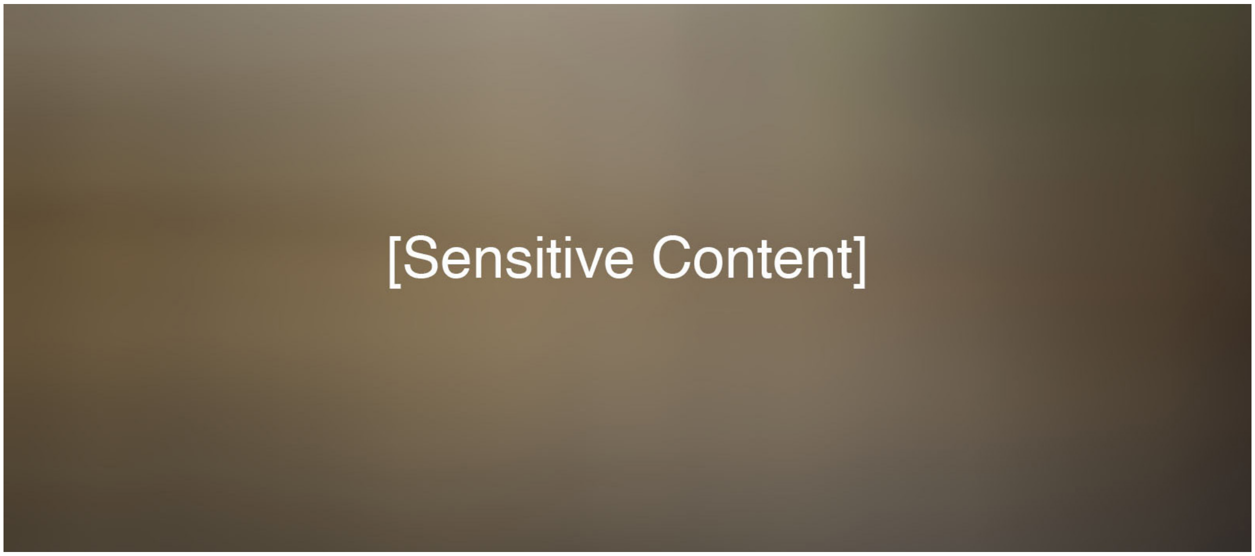


Figure 7.11. *Overview of Burial 1 remains upon arrival to lab.*

damaged by backhoe excavation in October 2020. Most individual cranial bones and postcranial elements are fragmentary. Coffin remnants consisted of wood fragments, coffin hardware, and a plaque.

Number of Individuals

One (1) individual is represented by these remains. The skeletal elements are very fragmentary, but no duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

After cleaning, representatives from the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right ulna
Teeth #2-,4,6,8,9,11,13,15-19,21,22,24-32	Right radius
Sternum (manubrium only)	Right Os Coxae
Right and Left Ribs	Right and Left Femora
Cervical, thoracic, and lumbar vertebrae	Right and Left Tibiae
Right and left Scapulae	Right and Left Fibulae
Right humerus	Pedal elements

Sex

This individual is female, based on the morphology of the cranial and pelvic traits of Buikstra and Ubelaker (1994). The right sciatic notch was wide, a moderate preauricular sulcus was present, the nuchal crest and mastoid processes were low and small respectively, the supraorbital margin was narrow, and the forehead area (glabella) was smooth and vertical (Figures 7.12 and 7.13). These features are consistent with female morphology.

Ancestry

Ancestry is not estimated for this individual. Fragmentation made cranial dimensions insufficient and facial features unavailable for reconstruction or analysis.

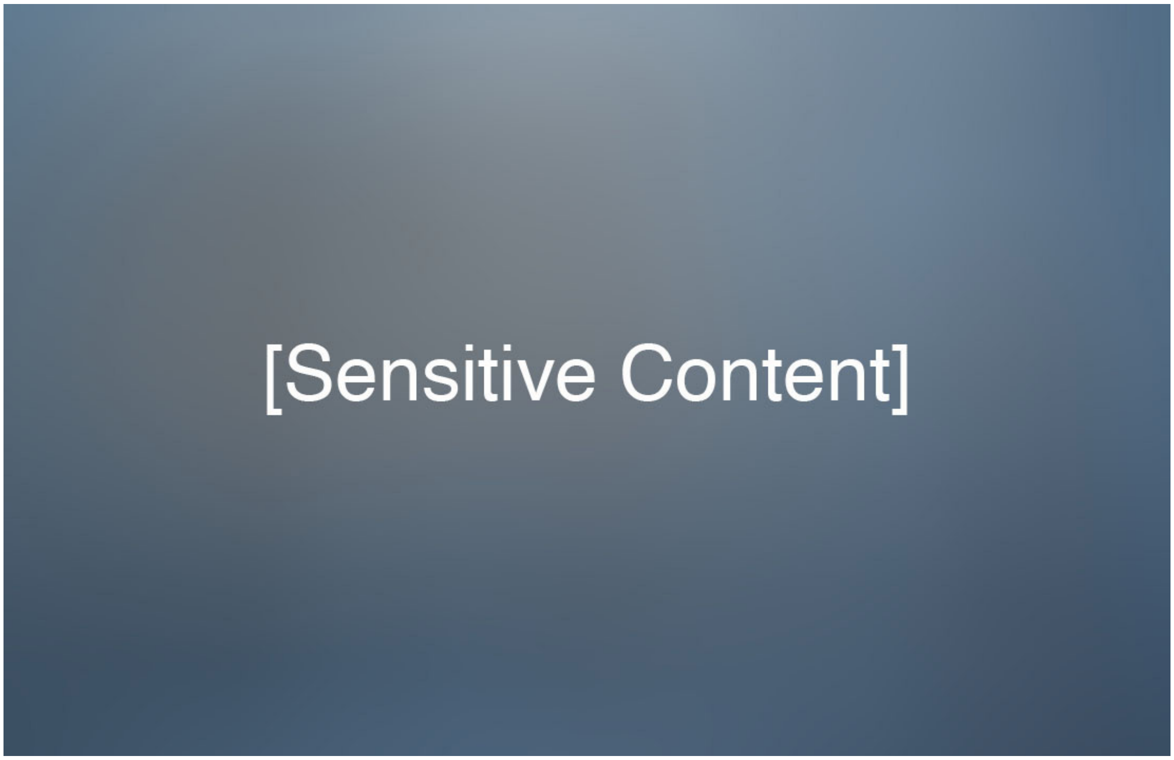


***Figure** 7.12. Anterior and posterior views of the reconstructed Burial 1 cranium.*

***Figure** 7.13. Burial 1 recovered dentition.*

Age

This female is an older adult. No isolated epiphyses are observed. The third molars are erupted and worn to a flat occlusal surface (Figure 7.14). Arthritic changes, specifically lipping and porosity of the zygapophyses articulating the atlas and axis, are observed. Based on the degree of dental wear and the arthritic changes, an older adult is present.

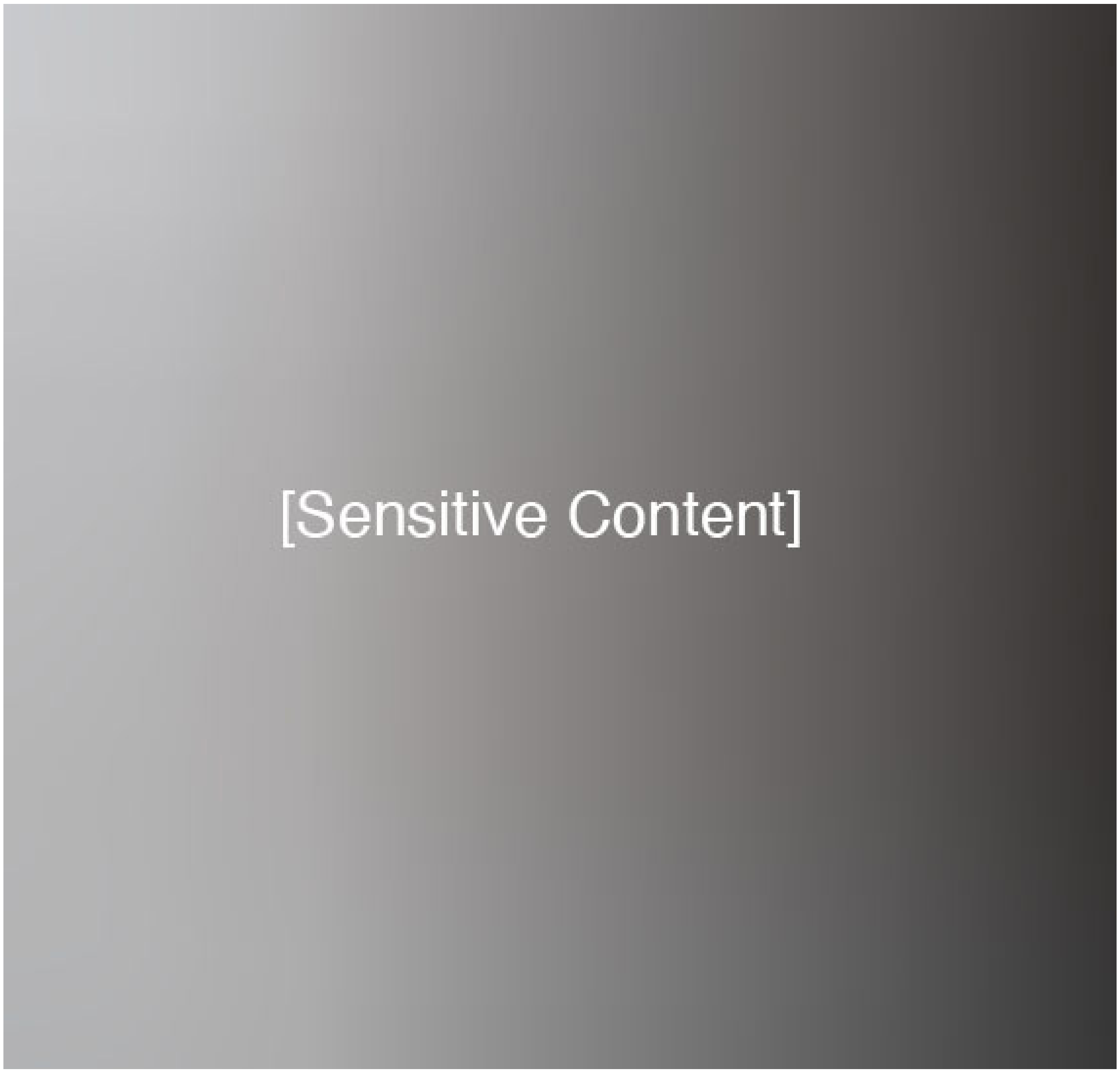


Figure 7.14. *Enlarged view of left maxillary dentition from Burial 1, showing abscess cavity in tooth #15 alveolus (arrow).*

Stature

Stature is not estimated for this individual due to fragmentation of the long bones.

Individualizing Traits or Anomalies

Exposed dentin patches are present on the occlusal surfaces of teeth #2, 4, 6, 8, 9, 11, 13, 15, 22, 26, 27, 30, and 31 (see Figure 7.11). Exposure of dentin can be due to a variety of factors including aging, dietary content, and use of teeth as tools, and the source here is unknown. These dentin patches are notable due to the lack of caries in the recovered dentition.

Antemorten or Pathological Conditions

An abscess is present on the alveolus of tooth #15 (see Figure 7.14). Arthritic changes, specifically lipping of the joint margins and porosity of the joint surfaces, are present in the articulations between the first and second cervical vertebrae.

Perimortem Trauma

No signs of trauma associable with a cause of death are observed.

Postmortem Damage

The individual in Burial 1 was contacted by the backhoe during the test excavation of October 2020. The bucket passed directly through the torso from left to right, causing fragmentation of the left limb bones, ribs, vertebrae, and pelvic girdle. The right limb bones may have been affected, as these elements were disintegrating during the October 2020 excavation. The cranium and upper cervical vertebrae were not disrupted by the backhoe but continued to disintegrate after this exhumation.

DNA Sampling

Two (2) petrous temporals and teeth #8, 9, 11, 13, 16, 17, 18, 19, 21, 22, 24, 25, and 26 were retained for later DNA analysis (Figure 7.15).

Summary of Conclusions and Opinions

The individual exhumed from Burial 1 is an older female of undetermined ancestry. Advanced dental wear is present, and there is an abscess in the left upper second molar. She has arthritic development in the vertebrae of her upper neck. No evidence of trauma that might be associated with a cause of death is observed, but this evaluation is limited by poor preservation of many skeletal elements. Her remains were severely disrupted by contact with the backhoe.

Based on biological sex and coffin style, this individual does not possess significant features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn

Figure 7.15. *DNA specimens retained for Burial 1 (left) and the bundled remains (right).*

Cemetery. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the temporal context of her burial.

Burial 2

Tulsa Race Massacre Investigation Burial Number: 02
Oaklawn Unknown Number: 12
Field Catalog Number: 45

Condition of Remains

These skeletal remains are friable and very fragmentary (Figure 7.16). Most individual cranial bones and postcranial elements are fragmentary. Rib, vertebral, and diaphyseal fragments were observable. Coffin remnants consisted of wood fragments and decorative hardware.

Number of Individuals

One (1) individual is represented by these remains. No duplicate elements, and no elements of anomalous size or developmental stage are recovered. These remains are photographed and radiographed in place without further inventory.

Sex

This burial contains a juvenile individual (see AGE below). Sex is not estimated for these juvenile remains.

Ancestry

This burial contains a juvenile individual (see AGE below). Ancestry is not estimated for these juvenile and very fragmentary remains.

Age

Based on development of the deciduous teeth and the encrypted adult dentition (Figure 7.17), this juvenile is approximately 5.5 years old at time of death (Al Qahtani et al., (2010). An

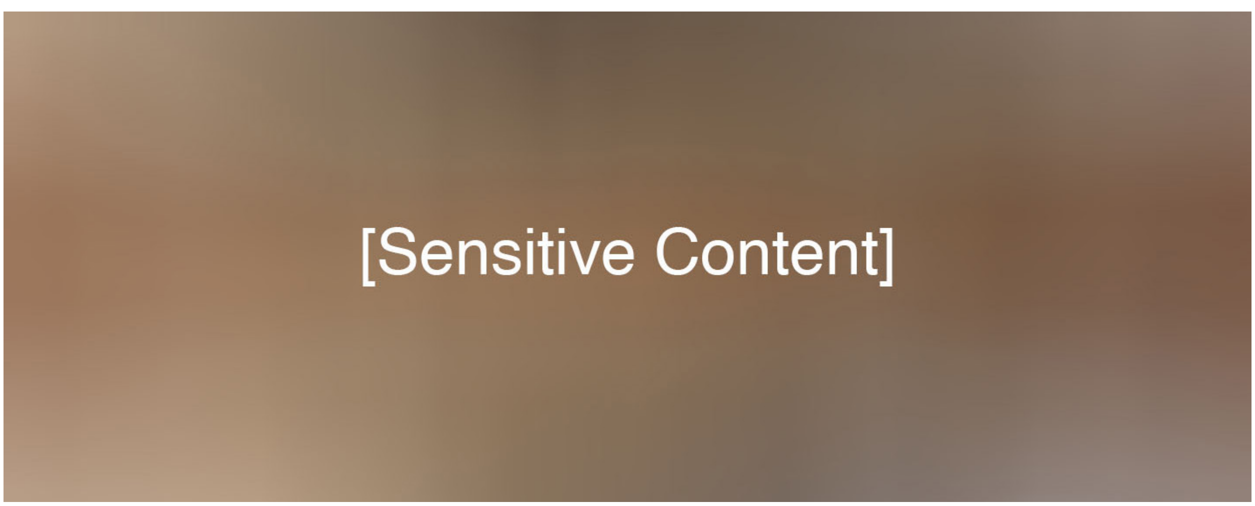


Figure 7.16. *Burial 2 upon arrival to the field laboratory.*

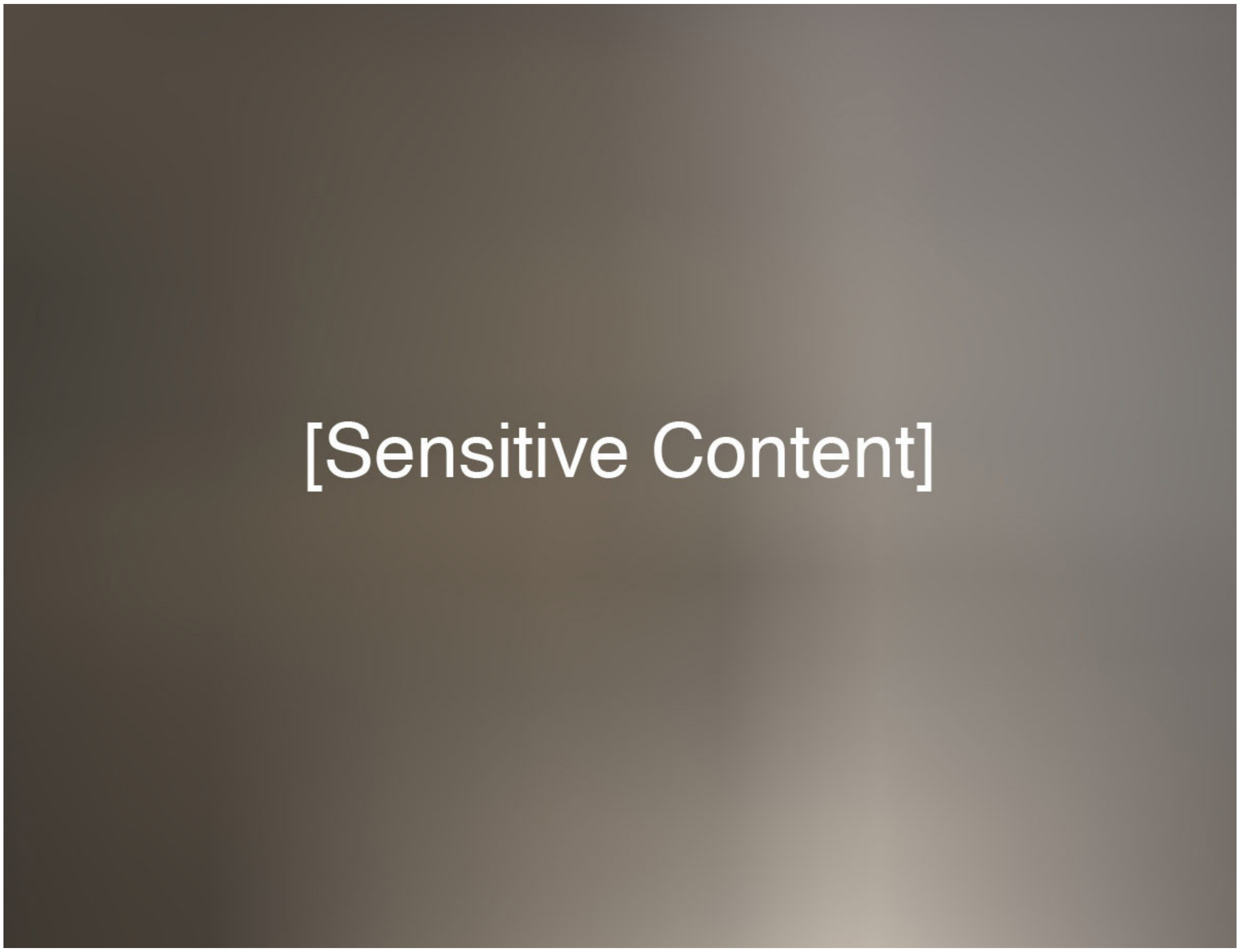


Figure 7.17. *Burial 2 dentition, a mix of deciduous (middle rows) and developing adult teeth.*

unsided femoral diaphysis measured 240 mm, which is equivalent to 4.5 to 5.5 years of age, for either sex (Maresh 1970).

Stature

Stature is not estimated for this juvenile.

Individualizing Traits or Anomalies

No individualizing traits or anomalies are observed.

Antemortem or Pathological Conditions

No antemortem trauma or pathological conditions are observed.

Perimortem Trauma

No trauma associable with a cause of death is observed.

Postmortem Damage

These skeletal remains are very fragile. Skeletal fragmentation and staining of bones from decomposition and soil is consistent with prolonged burial

DNA Sampling

No DNA specimens are retained for this juvenile individual (Figure 7.18).

Summary of Conclusions and Opinions

Burial 2 contained a juvenile of unknown sex, aged approximately 5.5 years at time of death. No trauma associable with a cause of death is observed in these remains, although this evaluation is limited by poor preservation of many skeletal elements. Skeletal fragmentation and staining of bones from decomposition and soil is consistent with prolonged burial. No DNA specimens are retained.

Based on developmental age and coffin style, this individual does not possess significant features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery.

Figure 7.18. *The bundled Burial 2 remains.*

Burial 3

Tulsa Race Massacre Investigation Burial Number: 03
Oaklawn Unknown Number: 14
Field Catalog Number: 47

Condition of Remains

These skeletal remains are friable and very fragmentary (Figure 7.19). The cranial vault retains articulated parietals, but the face is crushed and the dentition loosed. Two (2) gold teeth are present. The left humerus, right clavicle, femora, and tibiae are intact. Thoracic structures, ulnae, and radii are fragmentary. Butvar is applied to the skull, right clavicle, femora, tibiae, and pubic symphyses. Plant roots are observed penetrating the remains. Coffin remnants consist of a few nails.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

After cleaning, portions of the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right and Left Ulnae
Teeth #1-7,9-16,18,20-25,27-29,31	Right and Left Radii
Sternum (manubrium only)	Right and Left Os Coxae
Right and Left Ribs	Right and Left Femora
Cervical, thoracic, lumbar and sacral vertebrae	Right and Left Patellae
Right and Left Scapulae	Right and Left Tibiae
Right and Left Clavicles	Right and Left Fibulae
Right and Left Humeri	Manual elements
	Pedal elements

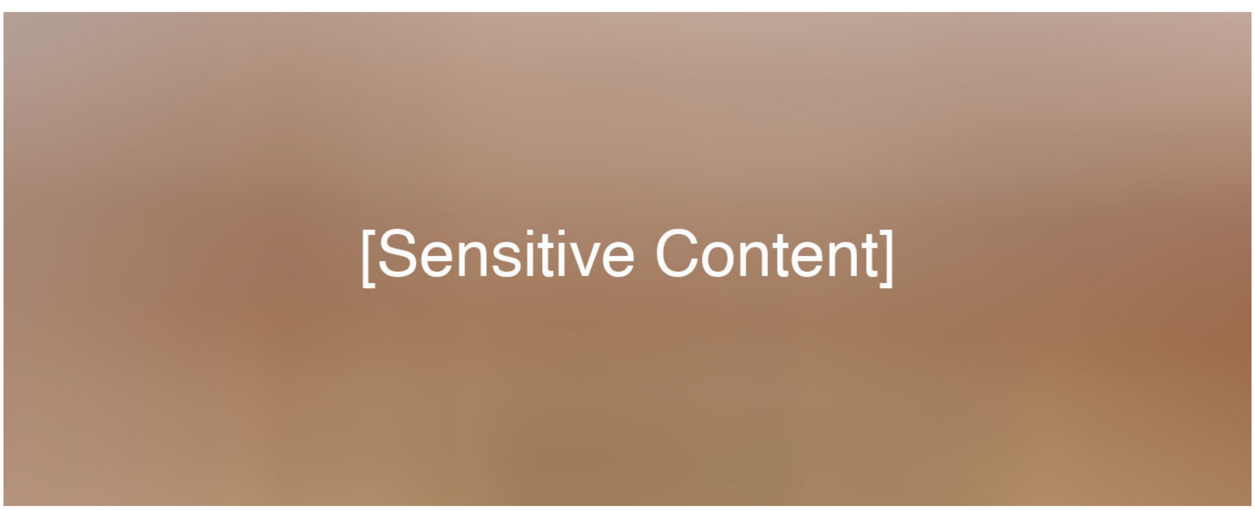


Figure 7.19. *Overview of the Burial 3 remains upon arrival to the laboratory.*

Sex

This individual is probably male. The right pubic symphysis preserved a vertical aspect to the ventral ridge, a linear subpubic profile, and a smooth subpubic ramus. The sciatic notches are narrow. The preserved cranial features, which included a robust nuchal crest, and broad supraorbital margins is consistent with a male individual.

Ancestry

Ancestry could not be reliably estimated for this individual. Cranial dimensions and facial features are unavailable for analysis due to the degree of cranial fragmentation.

Age

This individual is a young man, in his early 20s, showing partial fusion of the epiphyses of the medial clavicles, vertebral rings, and the iliac crest posterior epiphysis. The first and second sacral vertebrae are not fused. The fragment of left pubic symphysis displays billowing ridges and ossification nodules, in a manner consistent with Suchey-Brooks Phase II, which has a mean age of 25 and a range of 19-40 years. The state of epiphyseal union is consistent with early twenties.

Stature

Using predicted cadaver stature from the Fordisc (Jantz and Ousley 2005, version 3.1.321) 19th Century Black male population, the combined lengths of the clavicle, femur and tibia yield an estimated stature of 68.0 inches +/- 2.4 inches, at a 95% predictive interval. The formula used is: Stature = 0.04584 * CLAXLN+FEMXLN+TIBXLN (1033 mm) + 20.62.

Individualizing Traits or Anomalies

Teeth #9 and 10, the left central and lateral upper incisors, are gold-capped (Figures 7.20 & 7.21). The #9 cap is a frame around the crown of the tooth, leaving a window of exposed enamel. The #10 cap is a complete gold crown. Individual and multiple zones of linear enamel hypoplasia, which is frequently associated with illnesses producing high fevers as a subadult, are present on teeth #11, 14, 15, 21, 22, 23, and 24.

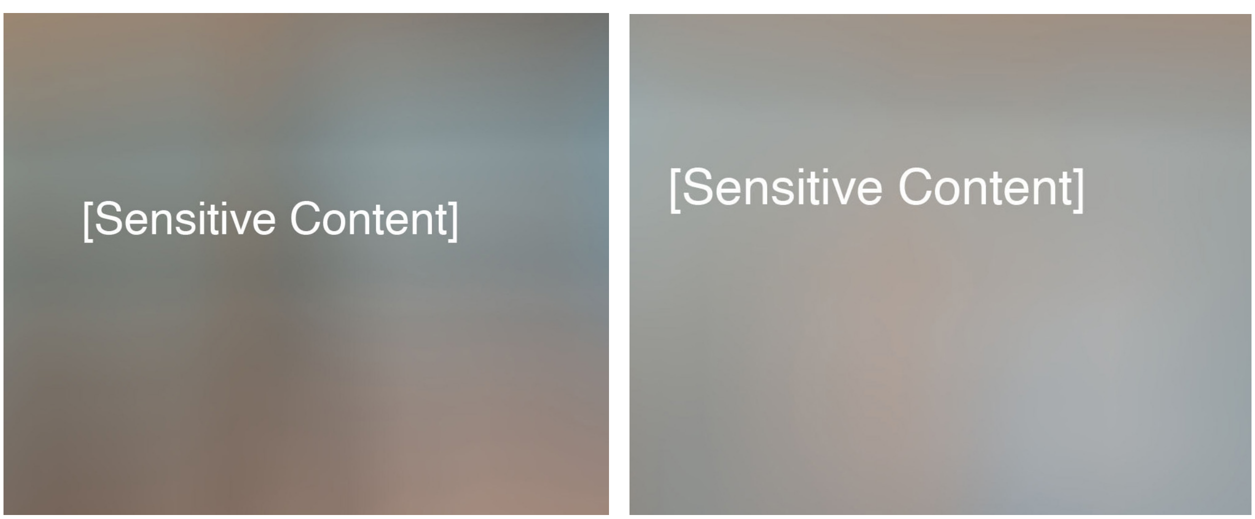


Figure 7.20. *Burial 3 dentition. This gentleman's gold teeth are visible in the upper row.*

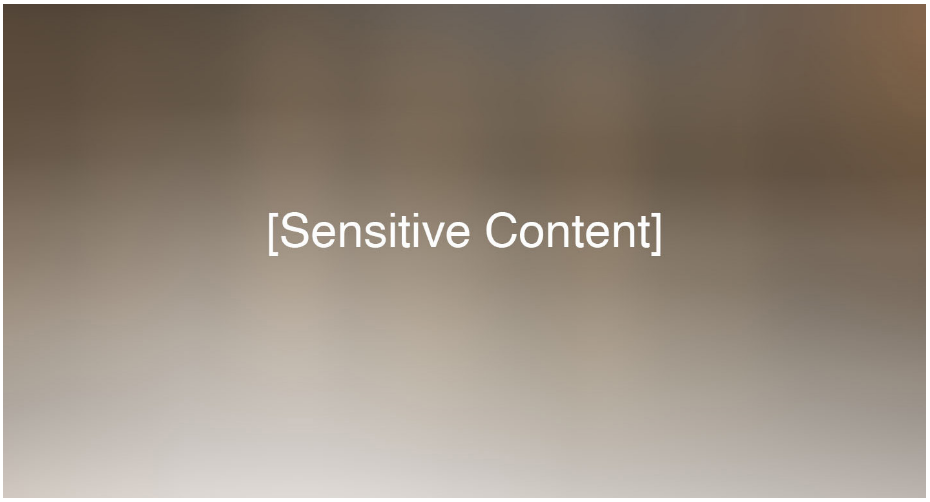


Figure 7.21. *Close up of teeth 9 and 10 from Burial 3 with complete and partial gold crowns, respectively.*

Antemortem or Pathological Conditions

This individual has a sagittal synostosis, or early fusion of the midline sagittal suture. Early fusion causes the vault to be elongated from front to back, as cranial growth is restricted to the anterior and posterior sutures. In life he might have appeared to have a narrow and long head.

Perimortem Trauma

No signs of perimortem trauma, or trauma that might be associated with a cause of death, are observed.

Postmortem Damage

Skeletal fragmentation and staining of bones from decomposition and soil is consistent with prolonged burial; the overall condition is similar to others in this exhumation cohort.

DNA Sampling

Two petrous temporals and teeth #6, 11, 12, 13, 15, 16, 23, and 24 were retained as samples for DNA analysis (Figure 7.22).

Figure 7.22. *DNA specimens retained for Burial 3 (left) and the bundled remains (right).*

Summary of Conclusions and Opinions

The individual exhumed from Burial 3 and accessioned as Oaklawn Unknown #14 is a young man in his early twenties. He has enamel defects that usually derive from high fever in infancy, and has gold crowns on two of his left upper incisors. His height is approximately 5 feet 7 inches. He might have appeared to have a narrow and long head, in life. No indicators of a cause of death were detected on his fragmentary remains; however, this evaluation is limited by poor preservation of many skeletal elements. Cranial and dental specimens are retained for DNA analysis.

Based on biological sex and coffin style, this individual possesses two but not all of the features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. This man is not excluded from investigation as a victim, as the challenging preservation of the burial environment has limited assessment of the remains. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the context of his burial.

Burial 4

Tulsa Race Massacre Investigation Burial Number: 04
Oaklawn Unknown Number: 13
Field Catalog Numbers: 255 And 265

Condition of Remains

Preservation of the skeletal material is similar to the other burials in this investigation for degree of fragmentation of ribs, vertebrae, and bones of the hands and feet, which are very degraded (Figures 7.23 and 7.24). Butvar is applied to the cranium and long bones, which are preserved intact or in large fragments. The remains were exhumed from a coffin with hardware, which was buried within a shipping container (see archaeological report in Appendix C).

Number of Individuals

Two (2) individuals are represented by these remains. Skeletal elements from one (1) adult and one (1) fetus are recovered.

The fetal remains are not analyzed. After cleaning, portions of the following classes of adult skeletal elements are present:

Skull (cranium and mandible)	Right and Left Ulnae
Teeth #1-18, the root of #19, 20-29, 31 and 32.	Right and Left Radii
Right and Left Ribs	Right and Left Os Coxae
Cervical, thoracic, lumbar and sacral vertebrae	Right and Left Femora
Right and Left clavicles	Right and Left Patellae
Right and Left Scapulae	Right and Left Tibiae
Right and Left Humeri	Right and Left Fibulae
	Manual elements
	Pedal elements

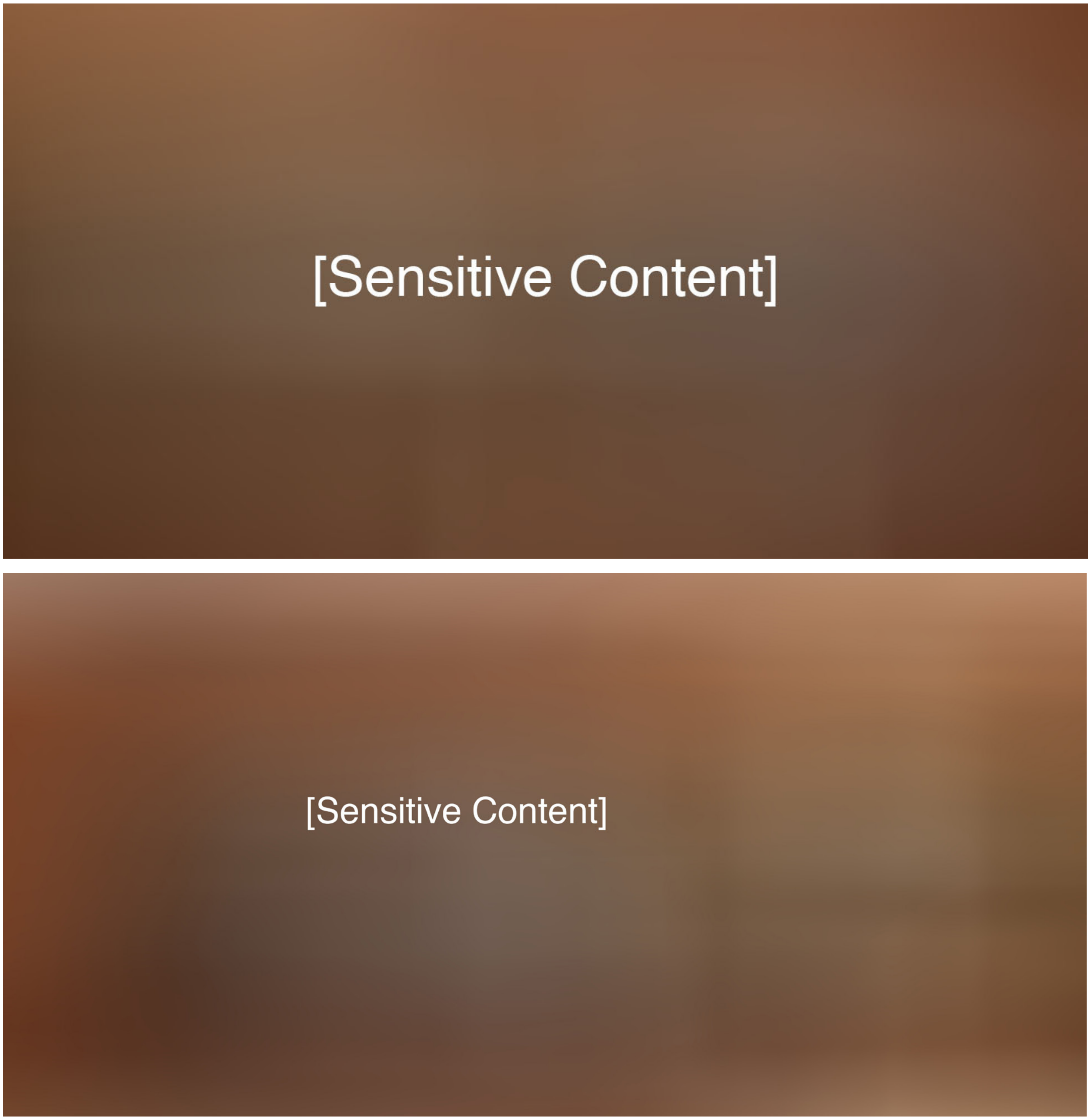


Figure 7.23. *Overviews of Burial 4 upon arrival at the lab.*

Sex

This individual is female. The preserved portions of the os coxae and the cranium and mandible are feminine in morphology, showing wide sciatic notches, small mastoid processes, fine supraorbital margins and a flat glabella region. Additionally, a fetus was recovered in the pelvic cavity.

Ancestry

Ancestry could not be reliably estimated for this individual due to fragmentation of the cranium. Analysis of the few cranial dimensions available associates this individual with the

Black female population of the Fordisc (version 3.1.315) 19th Century database, with a posterior probability of 0.980 and typicalities above 0.05. Although more cranial measurements are needed, this result combined with the circumstances of burial in Section 20 suggest that this individual would have identified as Black.

Age

This woman is an adult, older than her mid-twenties, but not past middle age. She has fused long bone epiphyses, and the bodies of sacral vertebrae one and two are fused. There is wear on her third molars, which are all fully erupted. Arthritic changes to joint surfaces and vertebrae are not observed.

Stature

Using predicted cadaver stature from the Fordisc 19th Century Black female population (Jantz and Ousley 2005, version 3.1.315), this woman's stature is approximately 63.6 +/- 2.8 inches at a 95% confidence interval, based on the formula:

Stature [63.6 inches] = 0.04978 * FEMXLN+TIBXLN (803 mm) + 23.63.

Individualizing Traits or Anomalies

Fusion of the second and third cervical vertebrae is observed (Figure 7.25). The anterior dentition is stained, possibly due to nicotine staining, but postmortem staining cannot be excluded.

Antemortem or Pathological Conditions

No significant evidence of healed fractures or osteoarthritic changes are observed in these remains. Dental disease was active—the crowns of teeth 19 and 31 are destroyed, and the crowns of 17, 18, and 32 have caries (Figure 7.26). Linear enamel hypoplasias are noted on teeth #9-12 and #27-29. These hypoplasias are frequently associated with periods of high fevers as a subadult.

Perimortem Trauma

No sign of perimortem trauma is observed on these remains.

Postmortem Damage

These remains are better preserved than others in the cohort, retaining intact cranial structures and long bones. General skeletal fragmentation and staining of bones from decomposition and soil is consistent with prolonged burial. The remains are fragile. The facial skeleton preserved an intact nasal aperture, but was observed collapsing during the examination. The ribs, vertebral bodies, and manual and pedal elements are generally not well preserved.

DNA Sampling

Two petrous temporals and teeth #1, 2, 3, 27. and 29 are retained as samples for later DNA analysis (Figure 7.27).

Summary of Conclusions and Opinions

These relatively well preserved remains exhumed from Burial 4 and accessioned as Oaklawn Unknown #13 represent an adult woman, within childbearing age and pregnant at thetime of death.

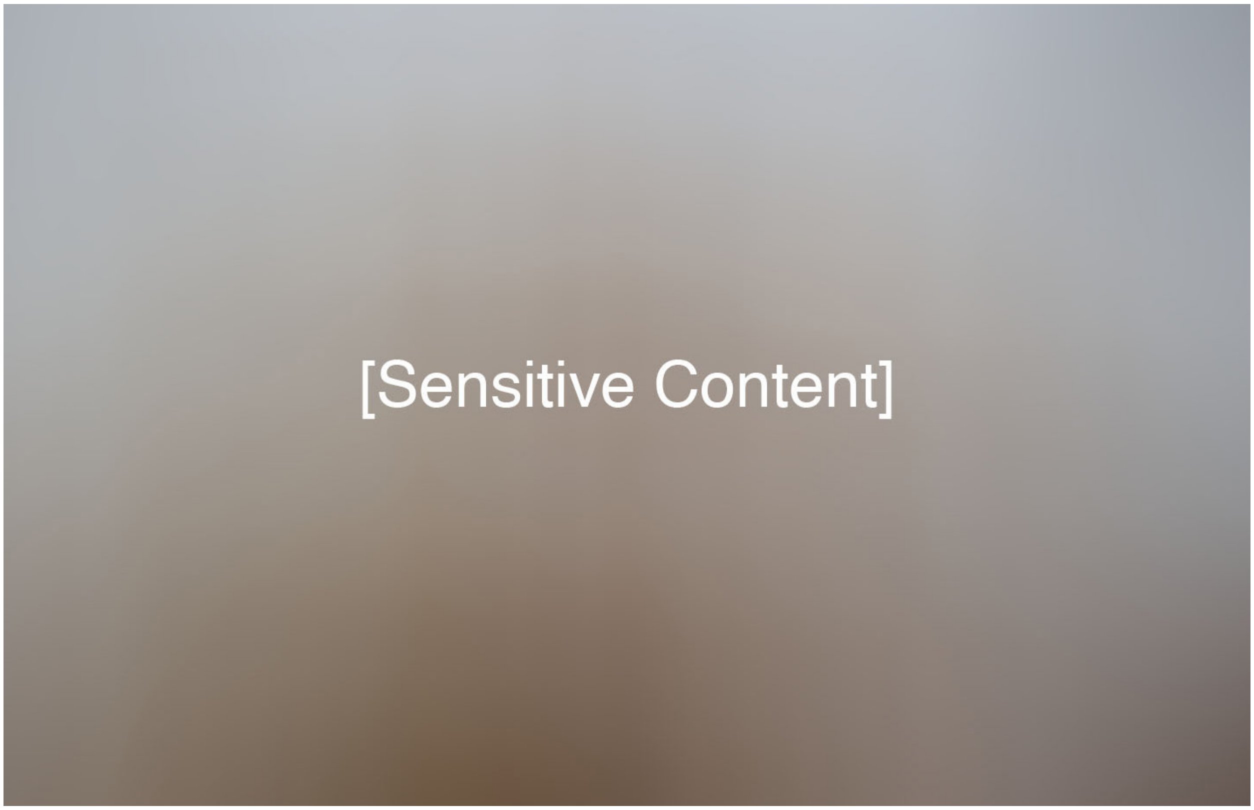


Figure 7.24. *Fetal skeletal elements recovered from the pelvic inlet of the Burial 4 woman.*

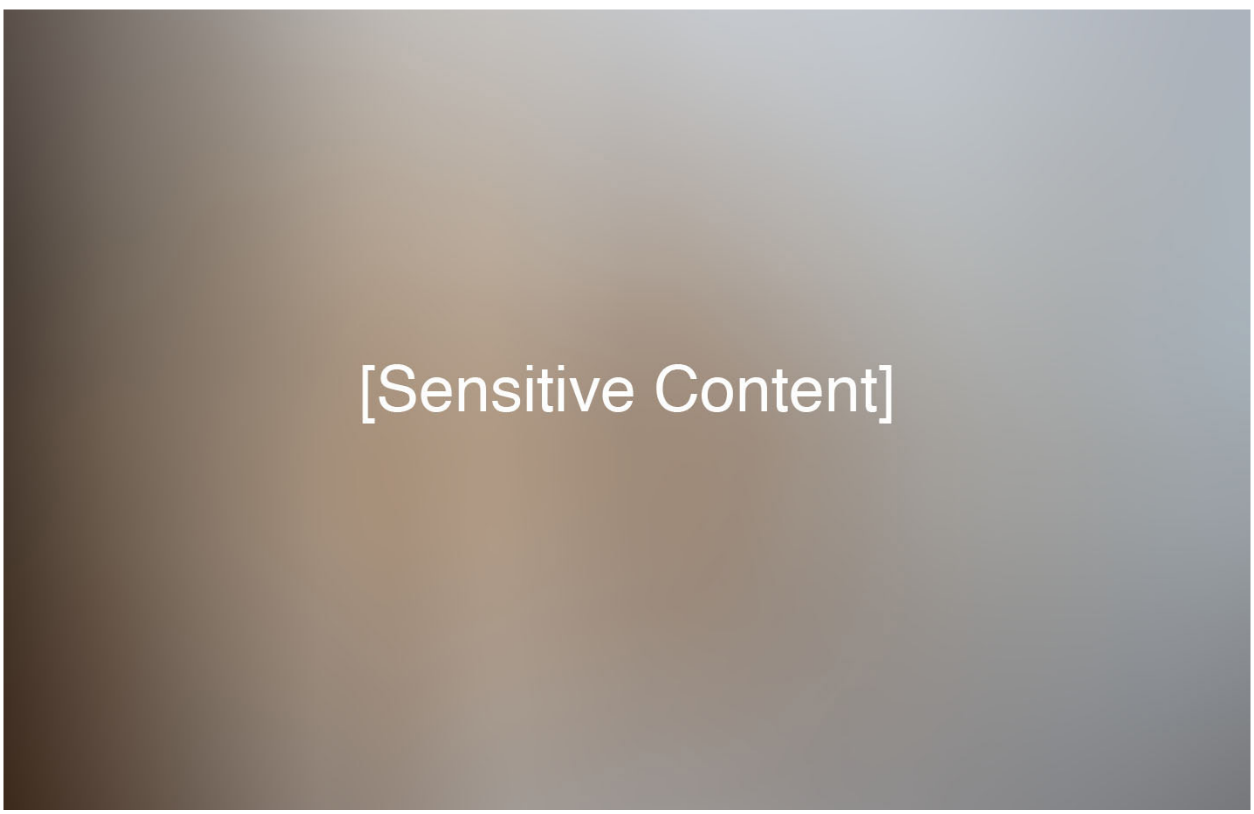


Figure 7.25. *Cervical vertebrae 2-4 from the Burial 4 adult female in block with the mandible, posterior view.*

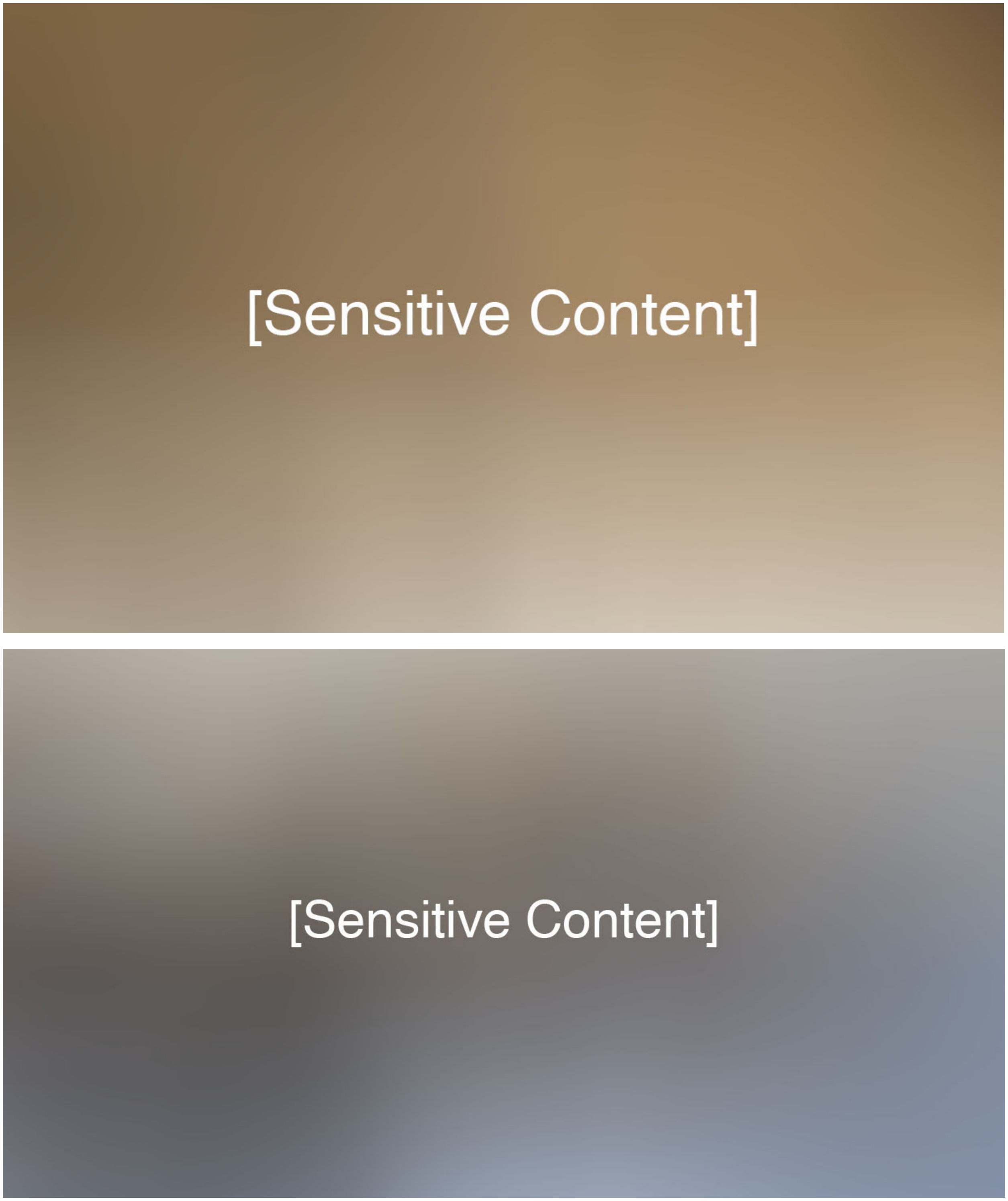


Figure 7.26. *Dentition of the adult female from Burial 4.*

Figure 7.27. *DNA specimens retained for the Burial 4 adult female (left) and the bundled remains (right).*

She stood approximately 5 feet 3 inches in height, and has no observable signs of healed skeletal trauma. The second and third vertebrae of her neck are congenitally fused, which she may have noticed as a limit in motion, but most motion in the neck takes places between the first and second cervical vertebrae. Possible nicotine staining (this could be soil staining) is present on the anterior teeth. She was losing her lower molars to dental attrition, but her upper teeth are relatively intact. There are no signs of trauma associable with a cause of death, however this evaluation is limited by poor preservation of many skeletal elements. Presence of a fetus in utero is not indicative of death in childbirth, although it does indicate death while pregnant. Postmortem alterations are congruent with long-term burial.

Based on biological sex and coffin style, this individual does not possess most features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the temporal context of her burial.

Burial 9

Tulsa Race Massacre Investigation Burial Number: 09
Oaklawn Unknown Number: 17
Field Catalog Number: 323

Condition of Remains:

These skeletal remains are friable and very fragmentary. Many elements, especially vertebrae, ribs, and manual/pedal elements, are represented by dust and bone fragments in the correct anatomical locations (Figure 7.28-7.30). The poor degree of preservation is exacerbated by previous exposure of the cranial area during the October 2020 excavation of Trench A. The coffin for this individual is represented by nail remnants. A finger ring personal effect was recovered (Figure 7.31).

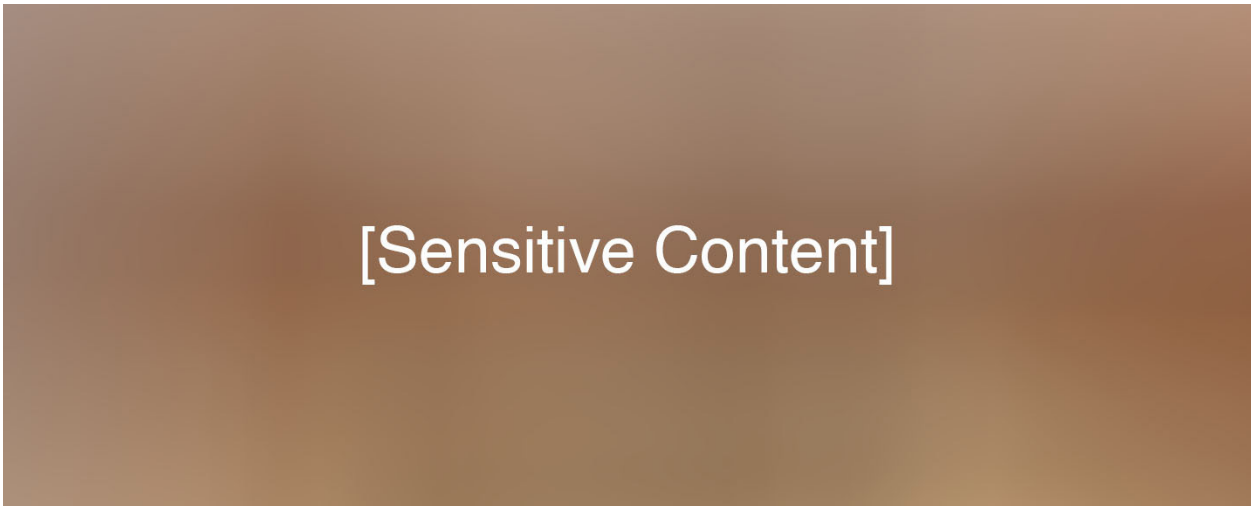


Figure 7.28. *Overview of the Burial 9 remains upon arrival in the laboratory.*

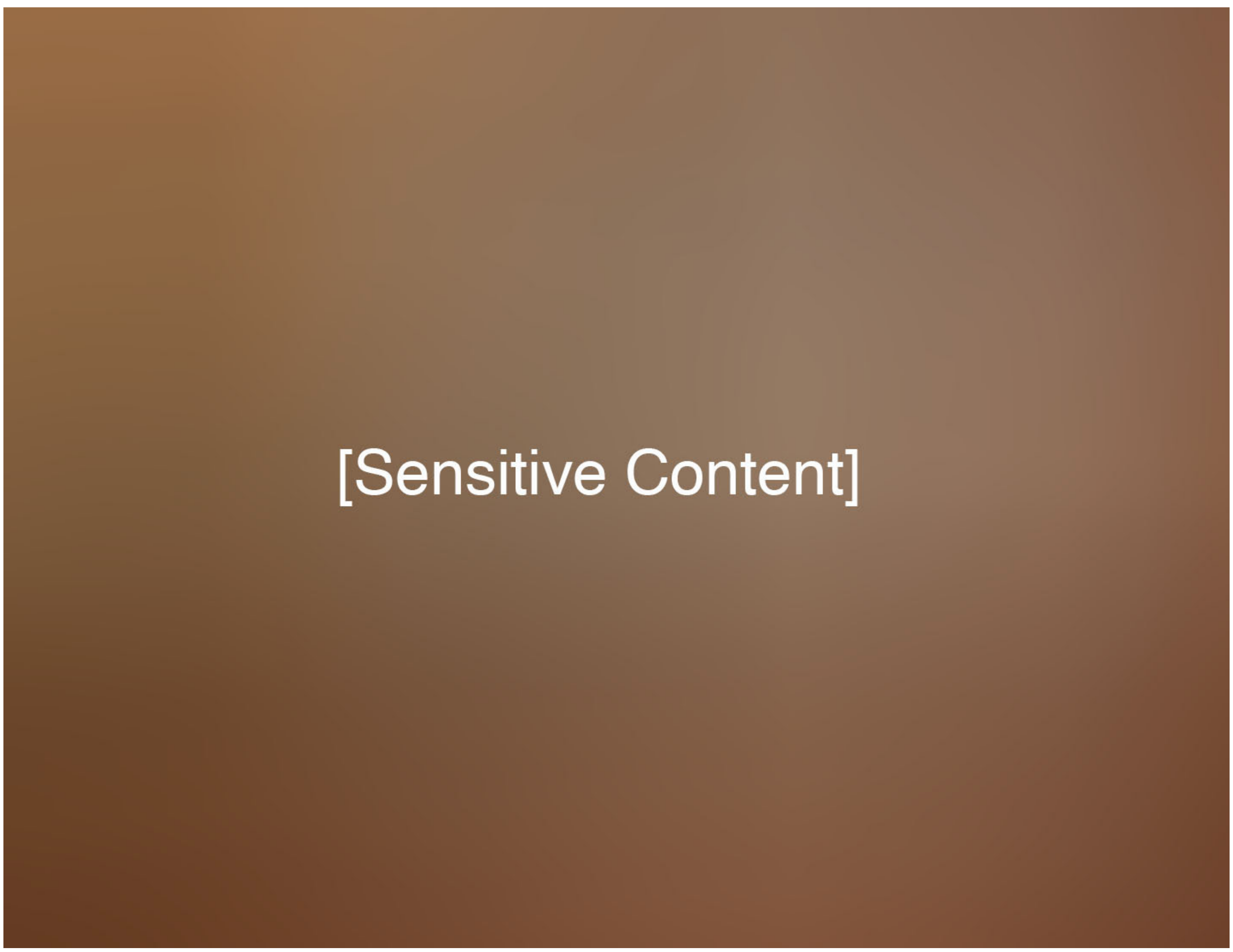


Figure 7.29. *Overview of Burial 9 remains, closer view of cranium and torso area.*

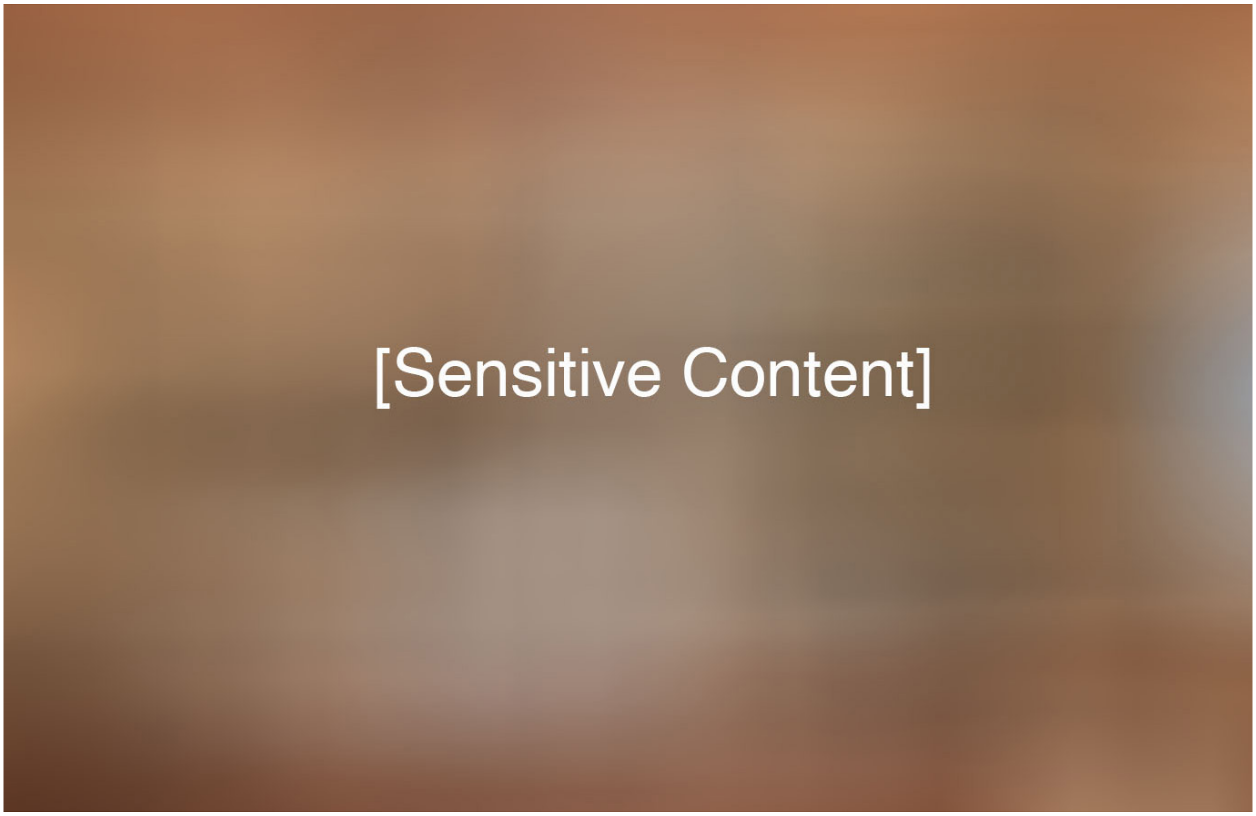


Figure 7.30. *Overview of Burial 9 remains, closer view of lower limbs and feet area.*

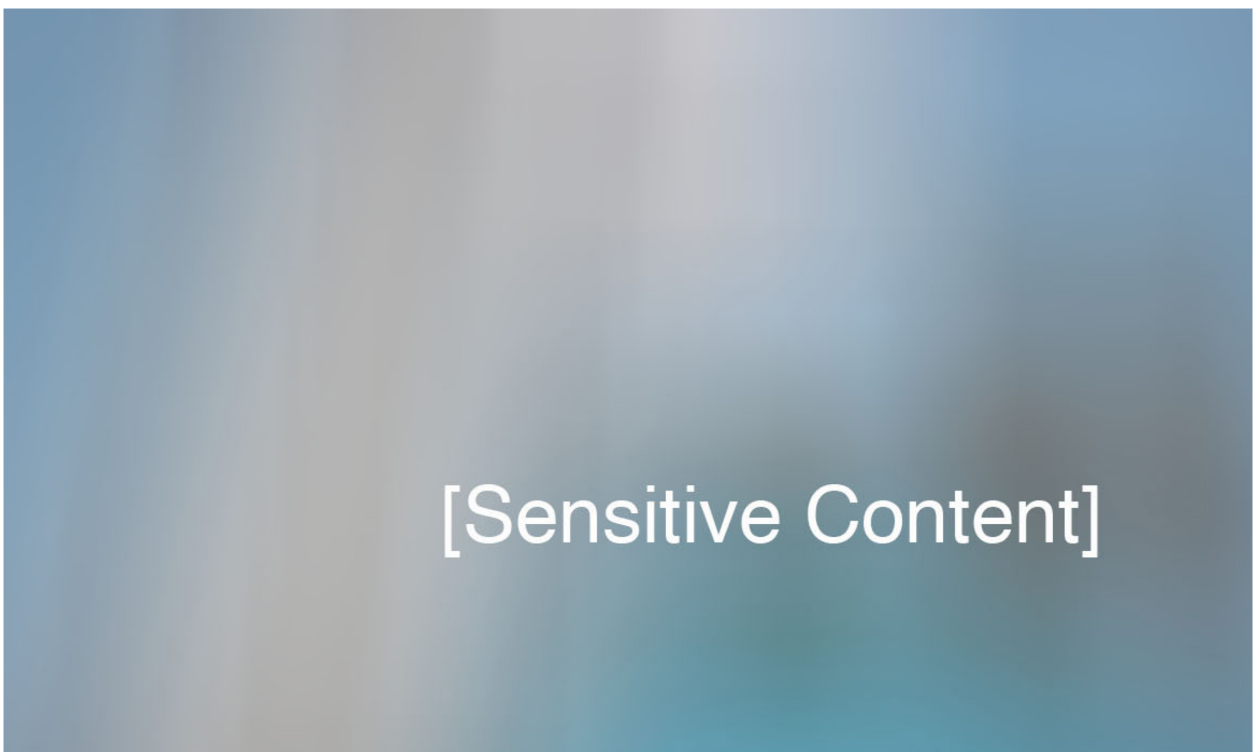


Figure 7.31. *Personal effect, a ring, and an associated phalanx, recovered from Burial 9.*

Number of Individuals

One (1) individual is represented by these remains. The skeletal elements are very fragmentary, but no duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

After cleaning the following classes of skeletal bones are present:

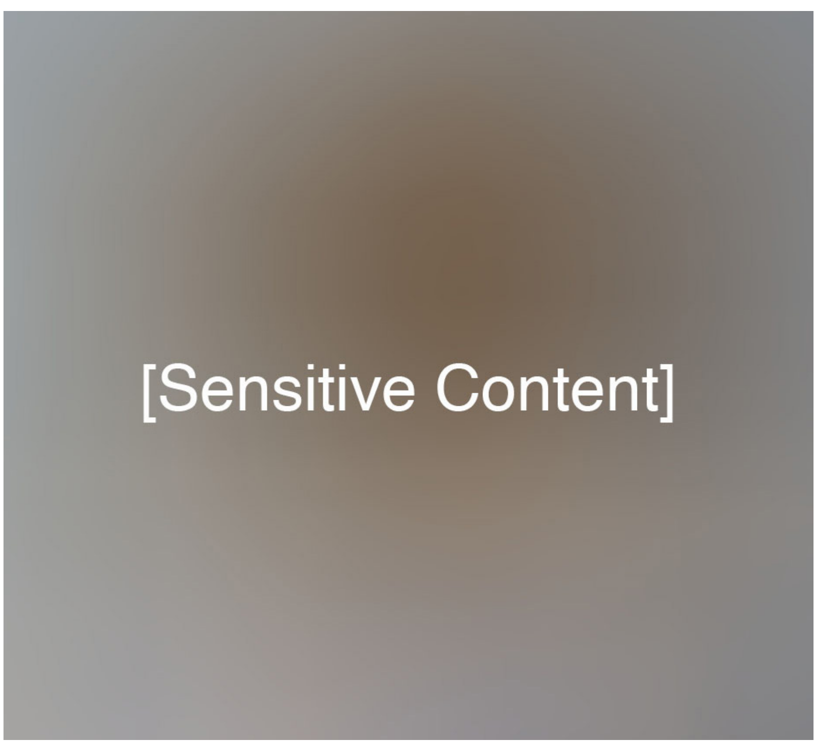
Skull (cranium and mandible)	Right and Left Os Coxae
Teeth #2, 15, and 27- 29	Right and Left Femora
Right and Left Scapulae	Right Patella
Right and Left Humeri	Right and Left Tibiae
Right and Left Ulnae	Right and Left Fibulae
Right and Left Radii	Manual elements
Right and Left Ribs	Pedal elements
Cervical, thoracic, and lumbar vertebrae	

Sex

This individual is male, based on preserved cranial traits (Buikstra and Ubelaker 1994) and postcranial robusticity. The nuchal area is robust and well developed and the supraorbital margin is broad and blunt. Muscle markings on the long bones are consistently robust and observable.

Ancestry

Ancestry could not be reliably estimated for this individual due to the degree of fragmentation in this skeleton (Figure 7.32).



<***Figure 7.32.*** *Anterior view of the cranium from Burial 9.*

Age

This individual is an adult. The observable epiphyses are fused. There is significant dental attrition in the form of a nearly edentulous mandible, and the internal cranial sutures are closed, suggesting this was an older male, but reliable adult age indicators had disintegrated.

Stature

Stature was not estimated for this individual due to the poor preservation of the skeleton.

Individualizing Traits or Anomalies

No actually individualizing traits are observed. This individual is nearly edentulous, based on the antemortem tooth loss in the mandible, and the recovery of only the upper second molars, and the right lower canine and premolars (Figures 7.33 and 7.34). This is a muscular person, with large muscle attachment sites at the deltoid tuberosities (Figure 7.35).

Antemortem or Pathological Conditions

The femoral condyles, especially the left, show porosity indicative of advanced osteoarthritis (Figure 7.36).

Perimortem Trauma

No signs of perimortem trauma are observed in these poorly preserved remains.

Postmortem Damage

The cranial area of these remains was contacted by the backhoe during initial discovery. The additional damage is not significant in comparison to the typical degree of preservation for remains in this exhumation cohort, although some teeth may have been lost. The right side of the mandible preserves alveolar morphology indicating at least dental roots were present at the time of death.

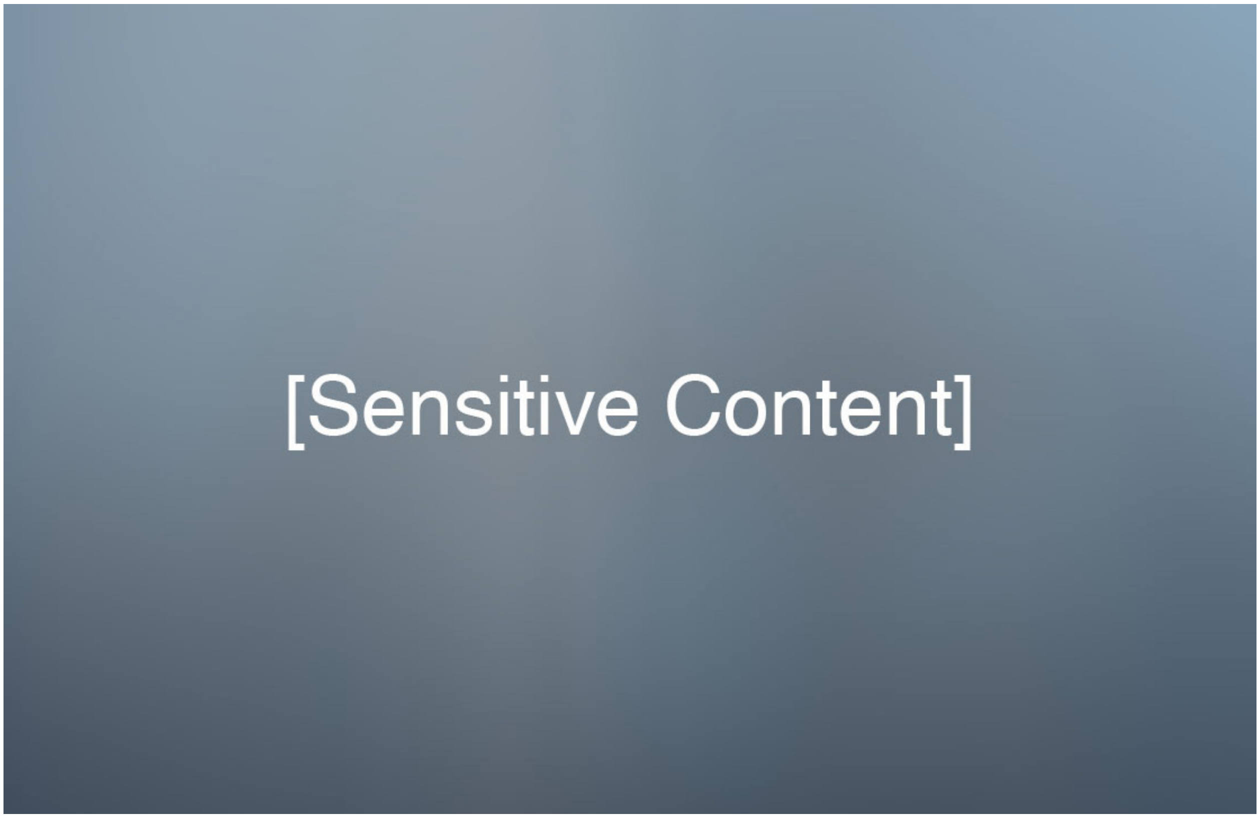
DNA Sampling

The right petrous temporal and teeth #2 and 15 are retained as samples for later DNA analysis (Figure 7.37).

Summary of Conclusions and Opinions

This individual accessioned as Oaklawn Burial 9 and Oaklawn Unknown #17 is an adult male, possibly an older adult, as he has an adult skeleton but has lost many teeth during his life. A personal effect, a hand ring, is present with his remains. He has muscular arms and arthritic knees. Due to poor preservation his ancestry and stature are not estimated. No indicators of trauma, either healed or that could be associated with a cause of death, are observed in these remains; however, this evaluation is limited by poor preservation of many skeletal elements.

Based on biological sex and coffin style, this individual possesses two but not all of the features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. This man is not excluded from investigation as a victim, as the challenging preservation



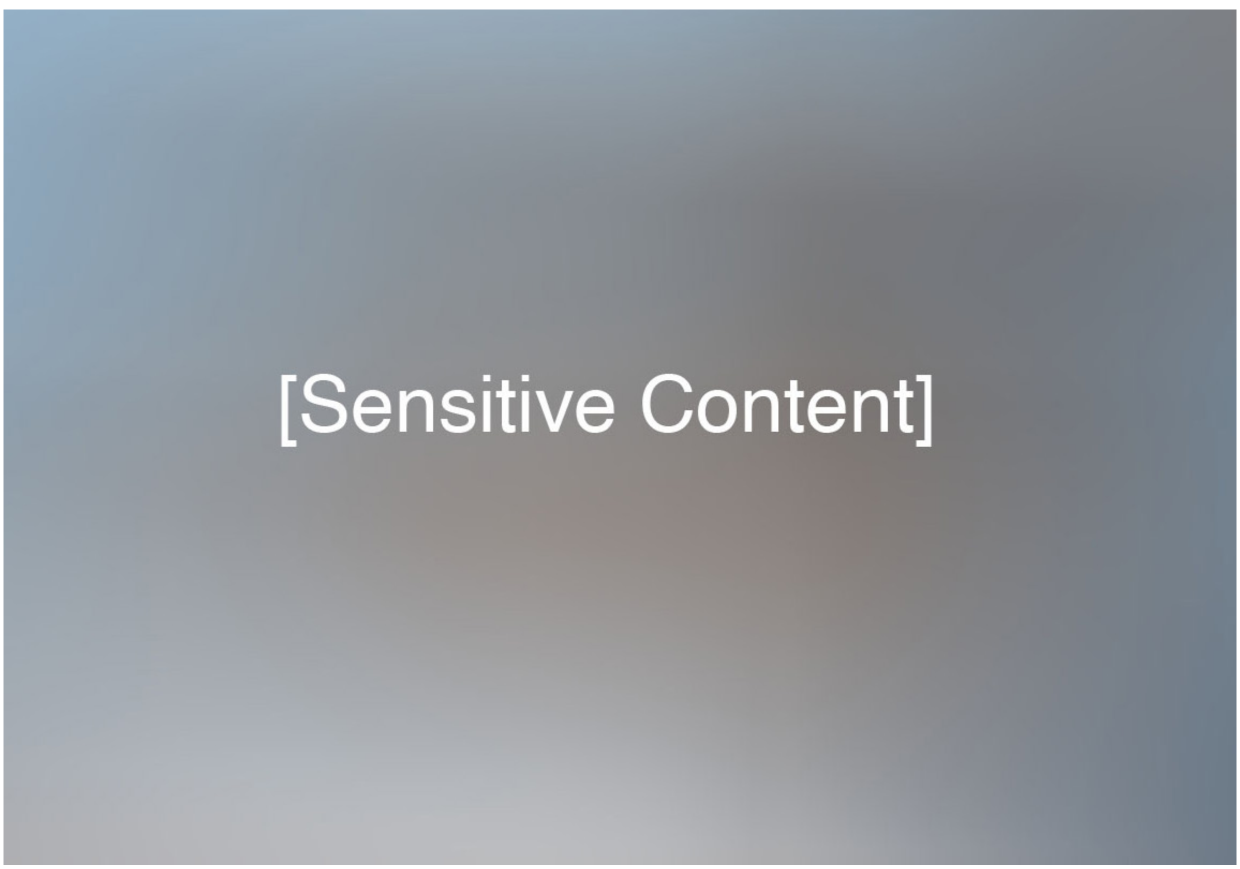
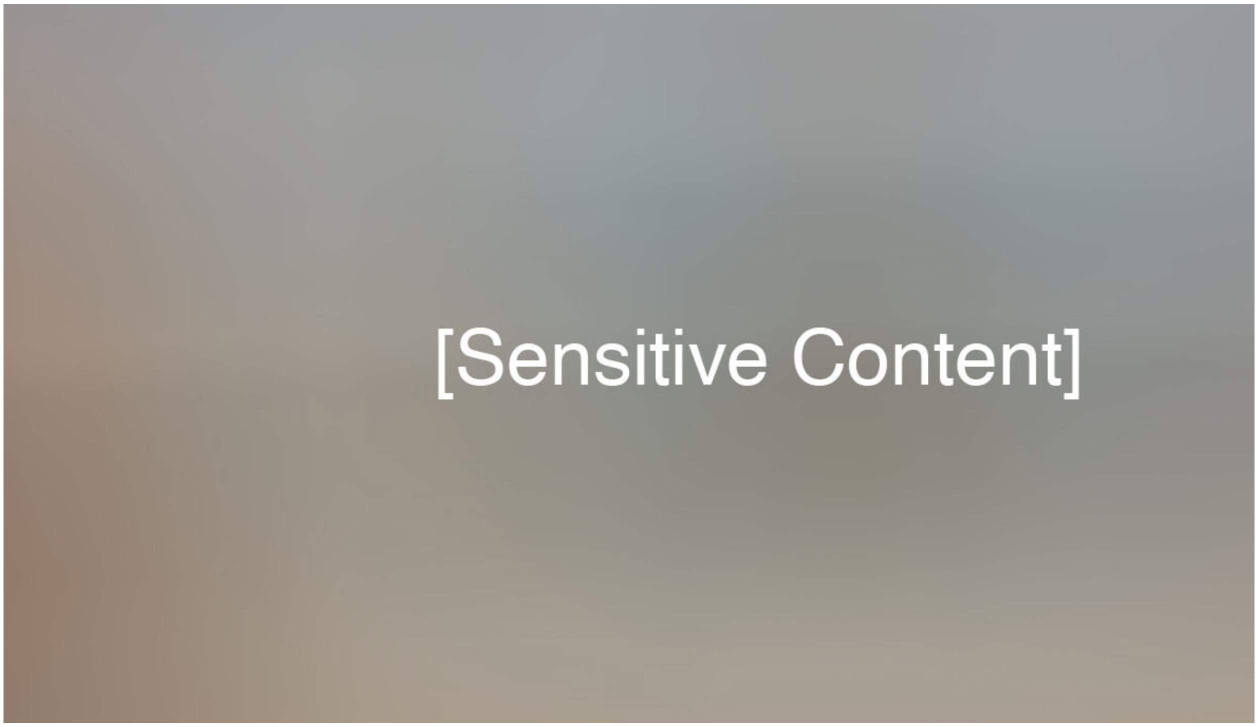


Figure 7.33. *Superior (top) and right lateral views of the mandible from Burial 9. The right molars were lost antemortem.*



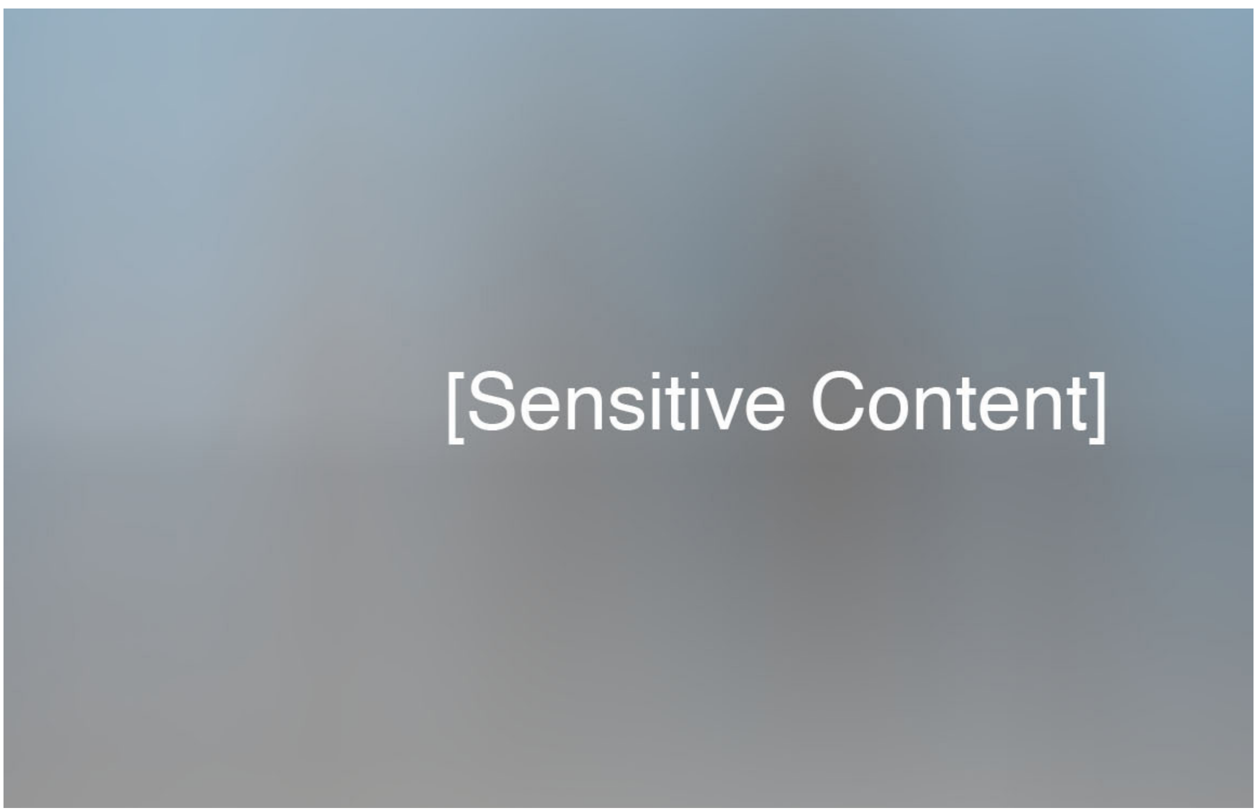


Figure 7.34. *Dentition recovered from Burial 9.*

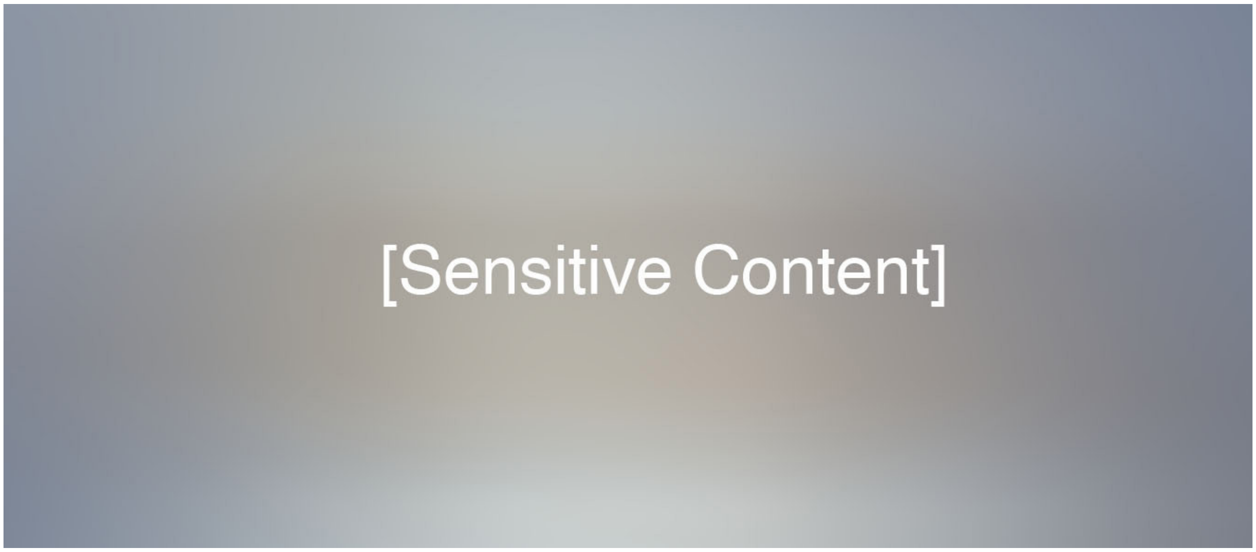


Figure 7.35. *Anterior view of the right and left humeri from Burial 9. This individual has large deltoid tuberosities.*

Figure 7.36. *Femora and detached condyles from Burial 9.*

Figure 7.37. *DNA samples retained for Burial 9 (left) and the bundled remains (right).*

of the burial environment has limited assessment of the remains. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the context of his burial.

Burial 13

Tulsa Race Massacre Investigation Burial Number: 13
Oaklawn Unknown Number: 02
Field Catalog Number: 84

Condition of Remains

These skeletal remains are friable and very fragmentary (Figure 7.38). Plant roots are observed penetrating elements of the thorax region. Green staining is observed on the left distal

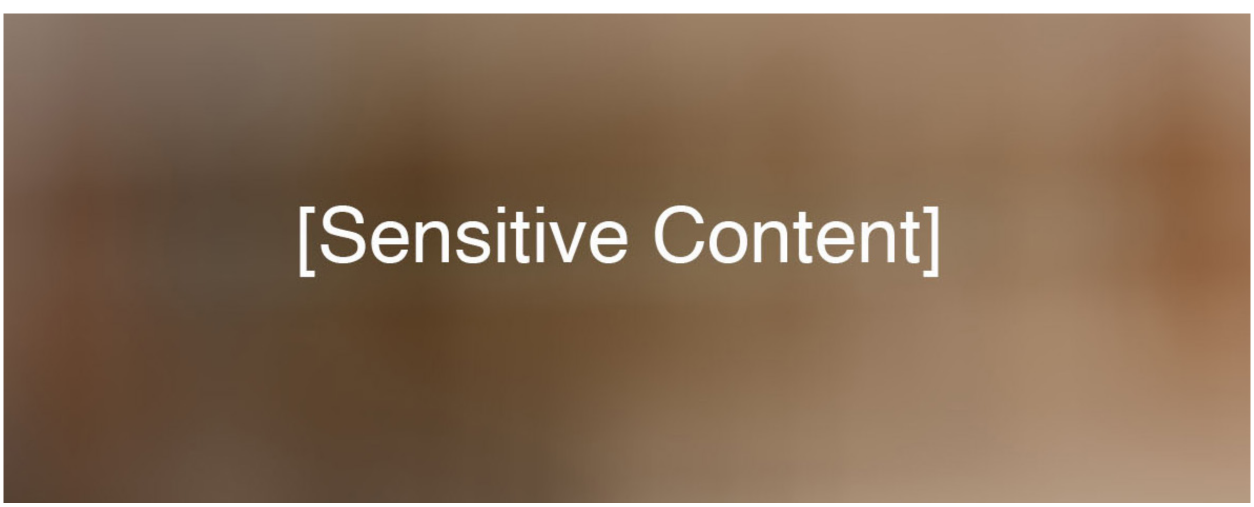


Figure 7.38. *Overview of the Burial 13 remains upon arrival in the field laboratory.*

radius and the left ilium. Radiography revealed a button-like object in the soil matrix at the left ilium (Figures 7.39 and 7.40). Butvar was applied to the skull in the field; more consolidant was applied in laboratory to preserve age indicators and long bones. Disintegration was ongoing, and the thorax continued to flatten and disintegrate as the remains dried in the laboratory. Coffin remnants consist of wood fragments, a plate reading “At Rest”, and coffin hardware (see archaeological report in Appendix C).

Number of Individuals

One (1) individual is represented by these remains. The skeletal elements are very fragmentary, but no duplicate skeletal elements were observed, and no elements of anomalous size or developmental stage were recovered.

After cleaning, representatives from the following classes of skeletal elements were present:

Skull (cranium and mandible)	Right and Left Ulnae
Teeth #3-14, 18,19,21-31	Right and Left Radii
Hyoid (left cornu)	Right and Left Os Coxae
Sternum (manubrium)	Right and Left Femora
Right and Left Ribs	Right and Left Patellae
Cervical, thoracic, lumbar, and sacral vertebrae	Right and Left Tibiae
Right and Left Scapulae	Right and Left Fibulae
Right and Left Clavicles	Manual elements
Right and Left Humeri	Pedal elements

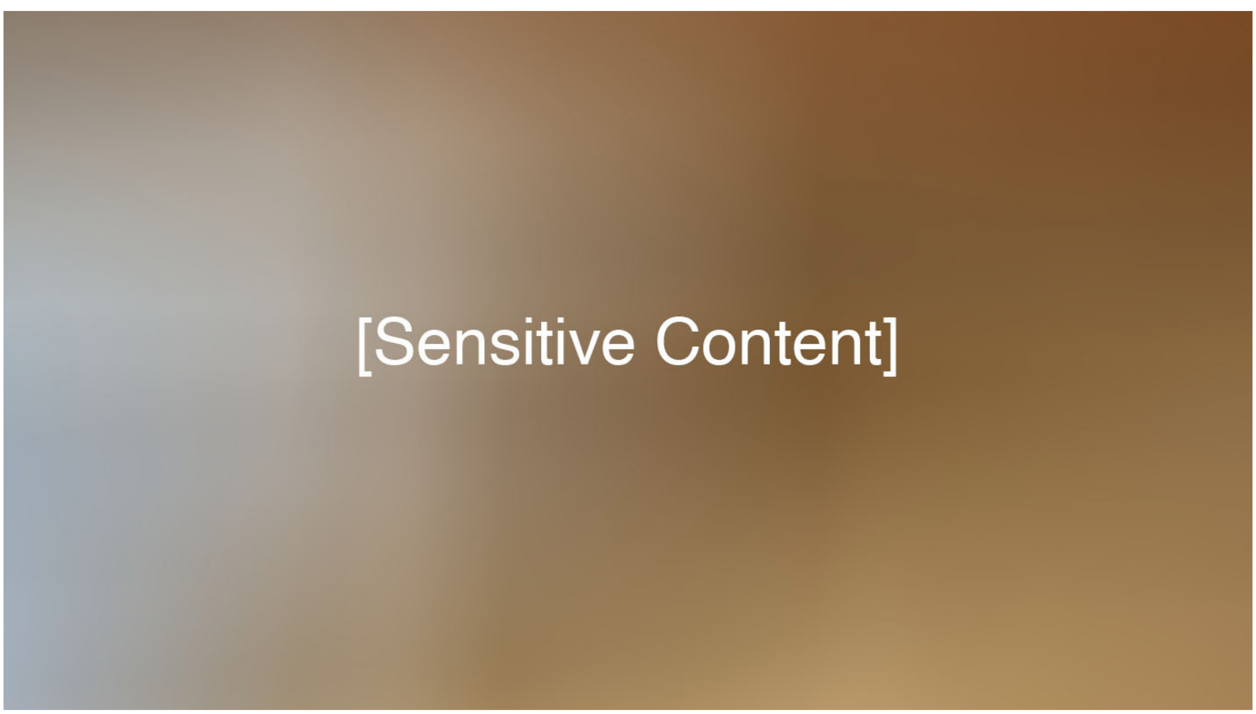
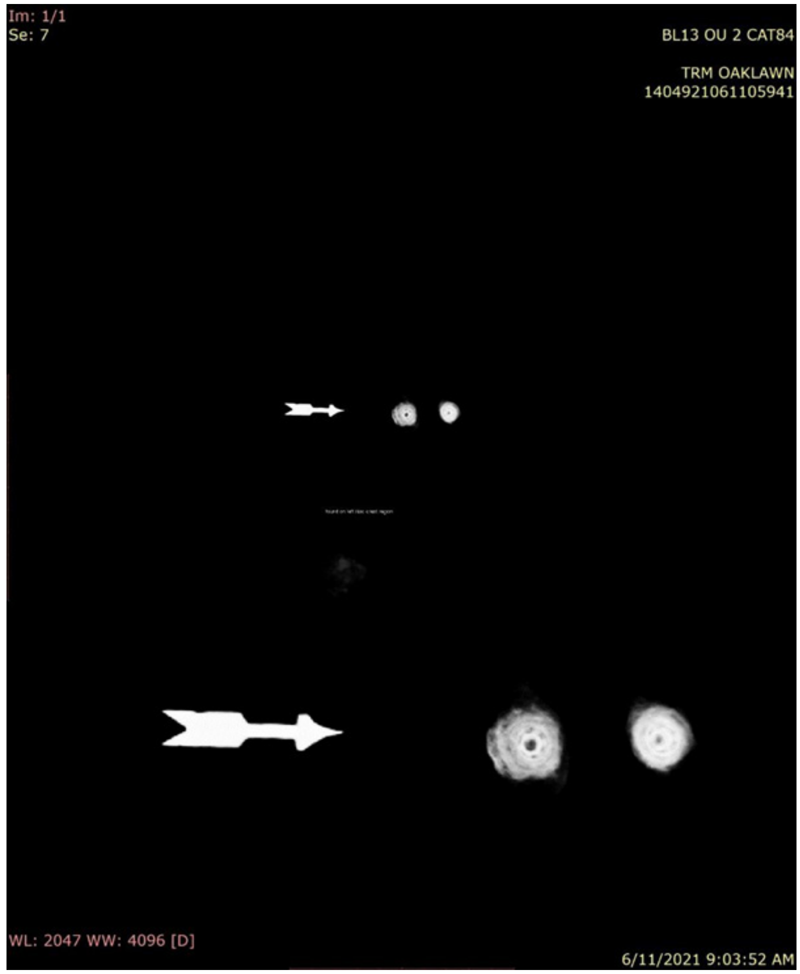


Figure 7.39. *Pelvic girdle from Burial 9, with green staining on left ilium.*



>Figure 7.40. *Radiograph of object recovered from green stained area on left ilium from Burial 9, with enlarged inset.*

Sex

This individual is female, based on the morphology of the cranial and pelvic traits (Buikstra and Ubelaker, 1994). The sciatic notches are wide, a moderate preauricular sulcus is present, the mastoid processes are moderate, the supraorbital margins are narrow, the forehead area (glabella) is smooth and vertical and the mental eminence is rounded. These features are consistent with female morphology. The nuchal crest was masculine in morphology, but is an exception likely related to the cranial asymmetry described below. The postcranial skeleton is gracile and consistent with female morphology.

Ancestry

This individual is of indeterminate ancestry. The neurocranium was sufficiently intact to obtain several measurements, but the facial skeleton was not recovered. Analysis using Fordisc (Jantz and Ousley 2005, version 3.1.321) produced typicalities of all type that supported rejecting membership in any female group in the database. Note the developmental condition described below affecting vault shape.

Age

Based on age related morphology of the auricular surfaces and the fragment of left pubic symphysis, this individual was in her mid to late thirties. The observed epiphyses were fully fused, and the recovered dentition was fully developed and erupted (Figure 7.41). Some anterior teeth had slight dentine exposure.

Stature

Stature was estimated at 63.2 inches +/- 3.8 inches from clavicle length and innominate height using the Fordisc (Jantz and Ousley 2005, version 3.1.315) formula for any 19th Century population. The predictive formula was:

Stature [63.2 inches] = 0.11866*(clavicle length + innominate height [340]) + 22.84

Individualizing Traits or Anomalies

See ANTEMORTEM TRAUMA OR PATHOLOGICAL CONDITIONS below.

Antemortem or Pathological Conditions

The cranium shows developmental asymmetry, as the right frontal and orbital area is more anterior than the left, and the left mastoid process is much larger than the right (Figure 7.42).

Individual and multiple zones of linear enamel hypoplasia, which is frequently associated with illnesses producing high fevers during infancy and early childhood, are present on teeth #6, 9, 10, 21, and 22. Caries are present in teeth 3, 7, and 12 (right first upper molar, right lateral incisor, and left third premolar).

Perimortem Trauma

No signs of trauma associable with a cause of death are observed.

Postmortem Damage

Skeletal fragmentation and staining of bones from decomposition and soil is consistent with prolonged burial; the overall condition is similar to others in this exhumation cohort.

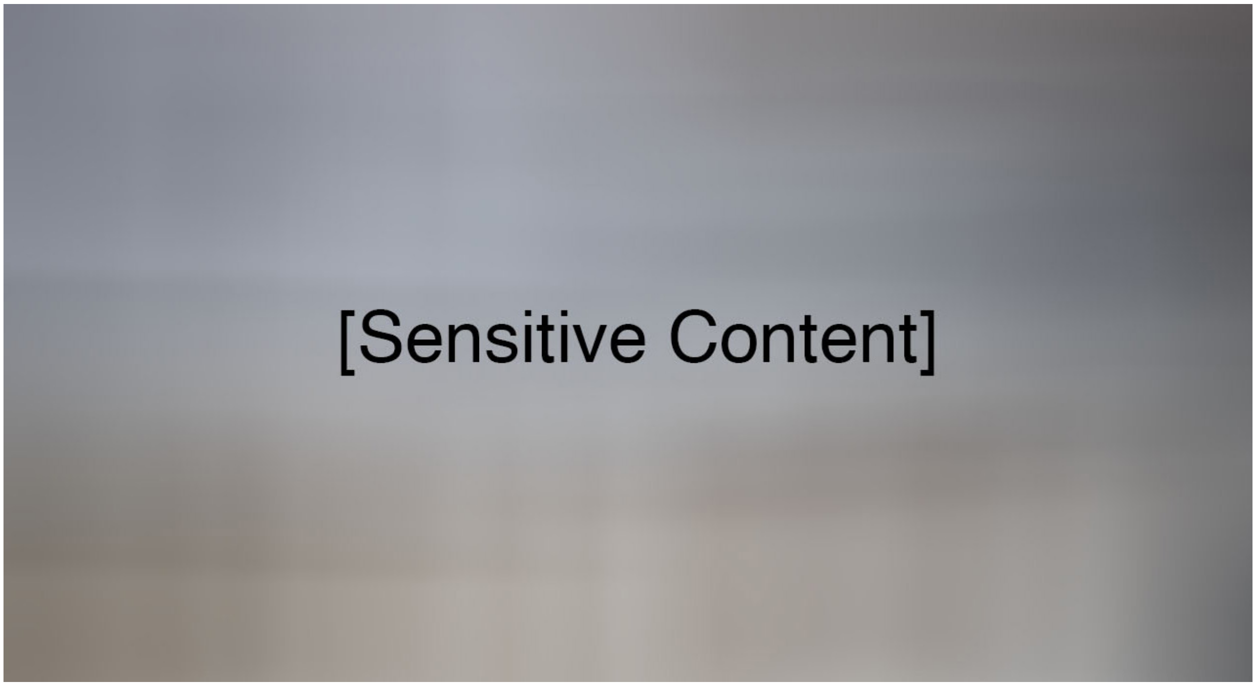
DNA Sampling

Two petrous temporals and teeth #4, 6, 8, 9, 10, 14, 19, 22, 23, 24, and 25 are retained as samples for later DNA analysis (Figure 7.43).

Summary of Conclusions and Opinions

The individual in Burial 13 is a female who possibly identified as Black, and was in her mid to late thirties at death. She had a cranial asymmetry that made the right side of her face slightly more forward than the left, and several of her anterior teeth show linear enamel hypoplasia. There are no indications of trauma that could be associated with a cause of death, however this evaluation is limited by poor preservation of many skeletal elements. Two button-like objects were preserved with her remains, and resulted in green stains on the bones of her left wrist and hip. Postmortem alterations are congruous with long-term burial and overall preservation is consistent with this exhumation cohort.

Based on biological sex and coffin style, this individual does not possess most features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery.



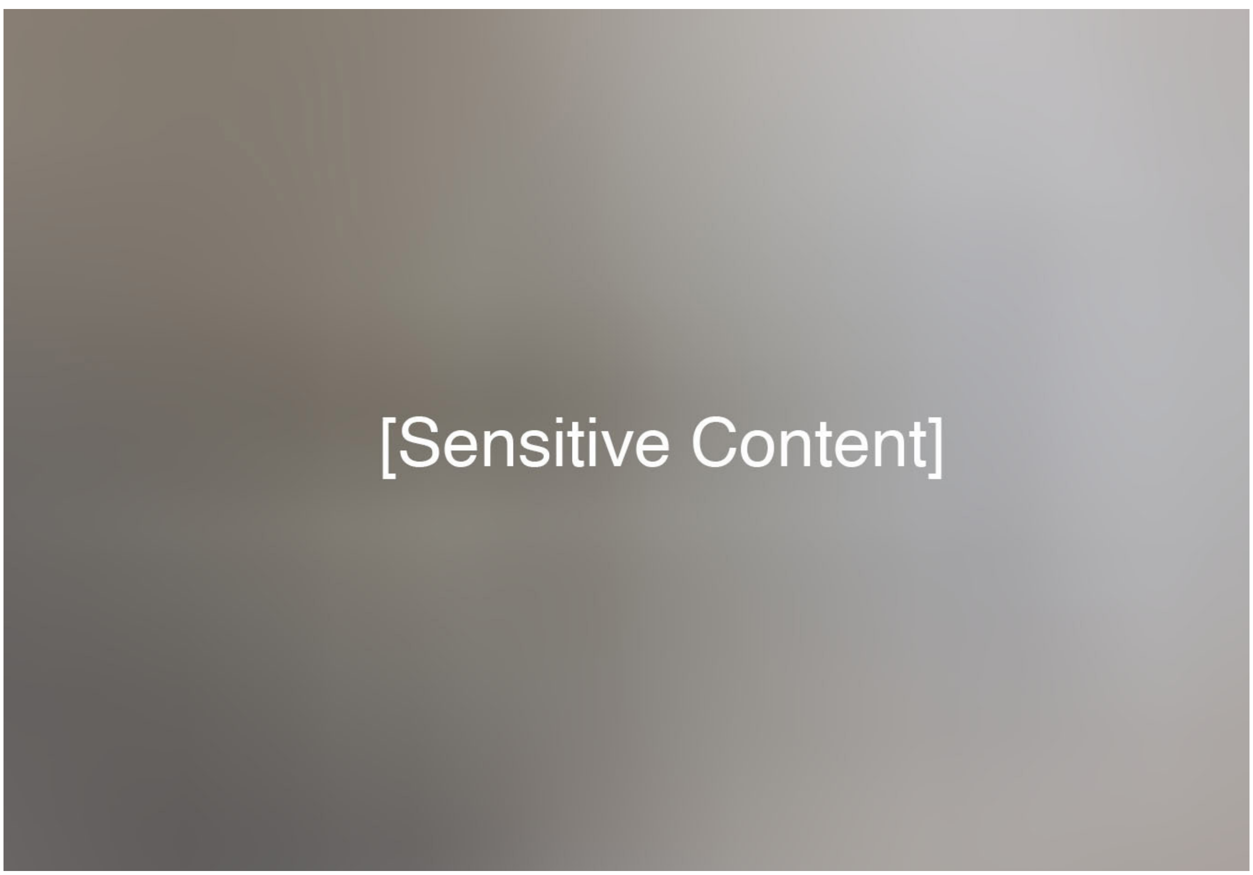


Figure 7.41. *Dentition from the individual in Burial 13.*

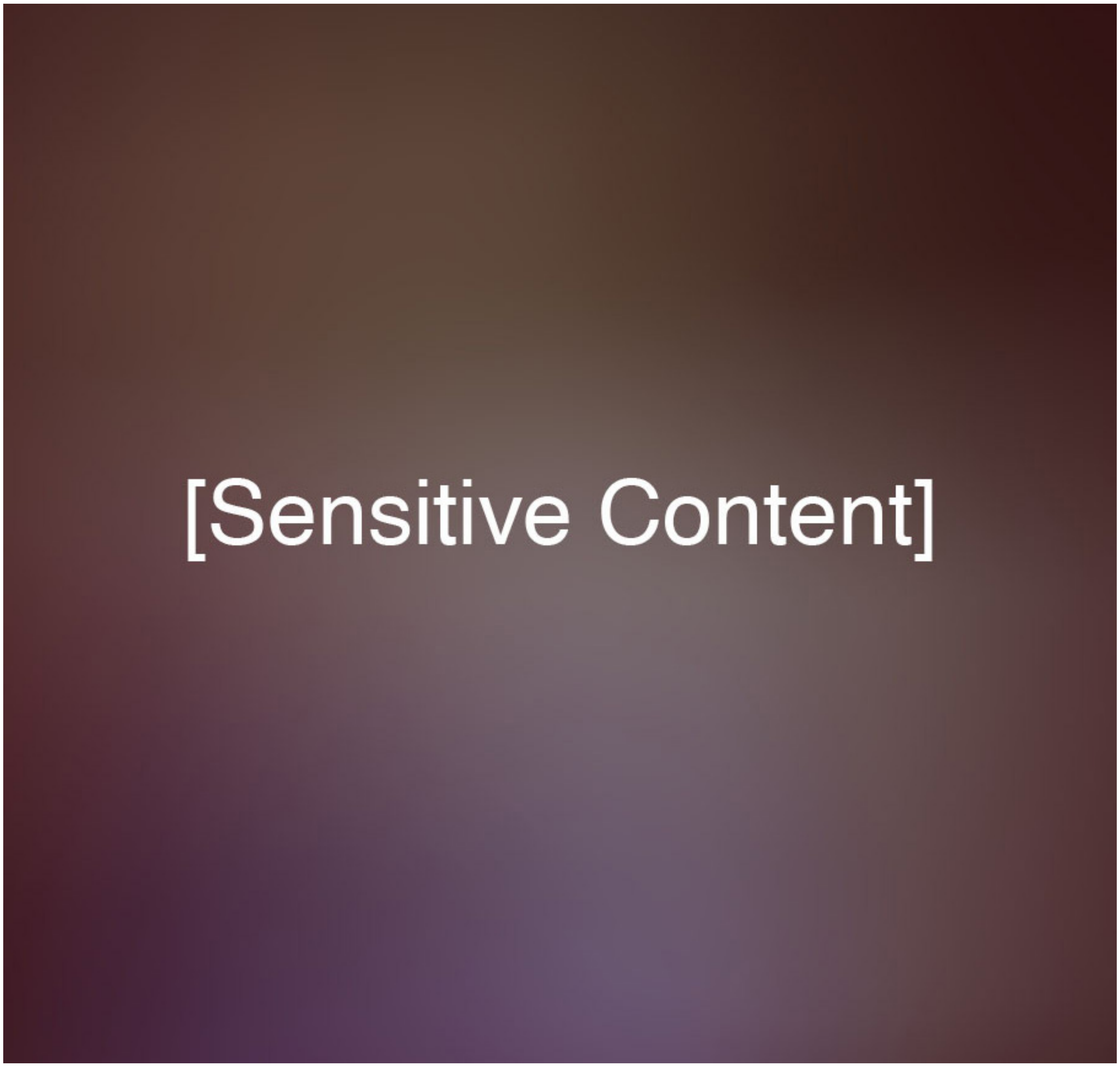


Figure 7.42. *Anterior view of cranium.*

Figure 7.43. *DNA specimens retained for the Burial 13 (left) and bundled remains (right).*

DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the temporal context of her burial.

Burial 14

Tulsa Race Massacre Investigation Burial Number: 14
Oaklawn Unknown Number: 11
Field Catalog Number: 218

Condition Of Remains

The degree of preservation is consistent with the exhumation cohort in that fragmentation was present throughout the skeleton, but several elements are present intact or in large fragments (Figure 7.44). The cranial vault is intact but the facial skeleton is crushed (Figure 7.45). A few postcranial elements, such as a clavicle and humerus, are intact, while most are present in large fragments. The hand elements are observed in situ over the thorax. This individual was recovered from a hexagonal coffin, and presented in a supine position with hands placed onto the abdomen, when exposed in excavation.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

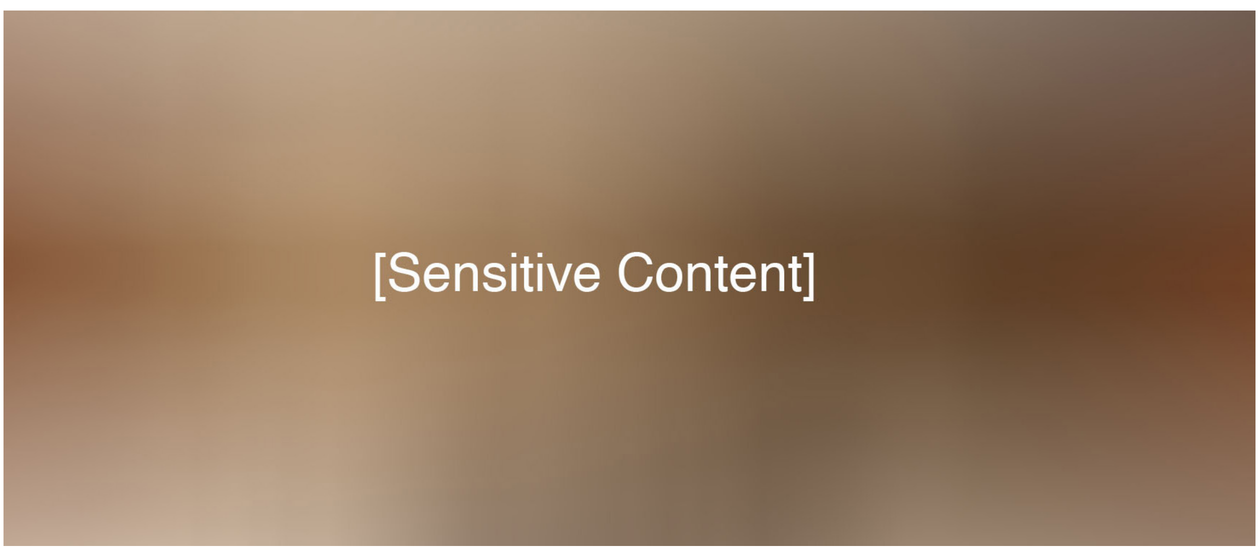


Figure 7.44. *Overview of the Burial 14 remains upon arrival in the laboratory.*

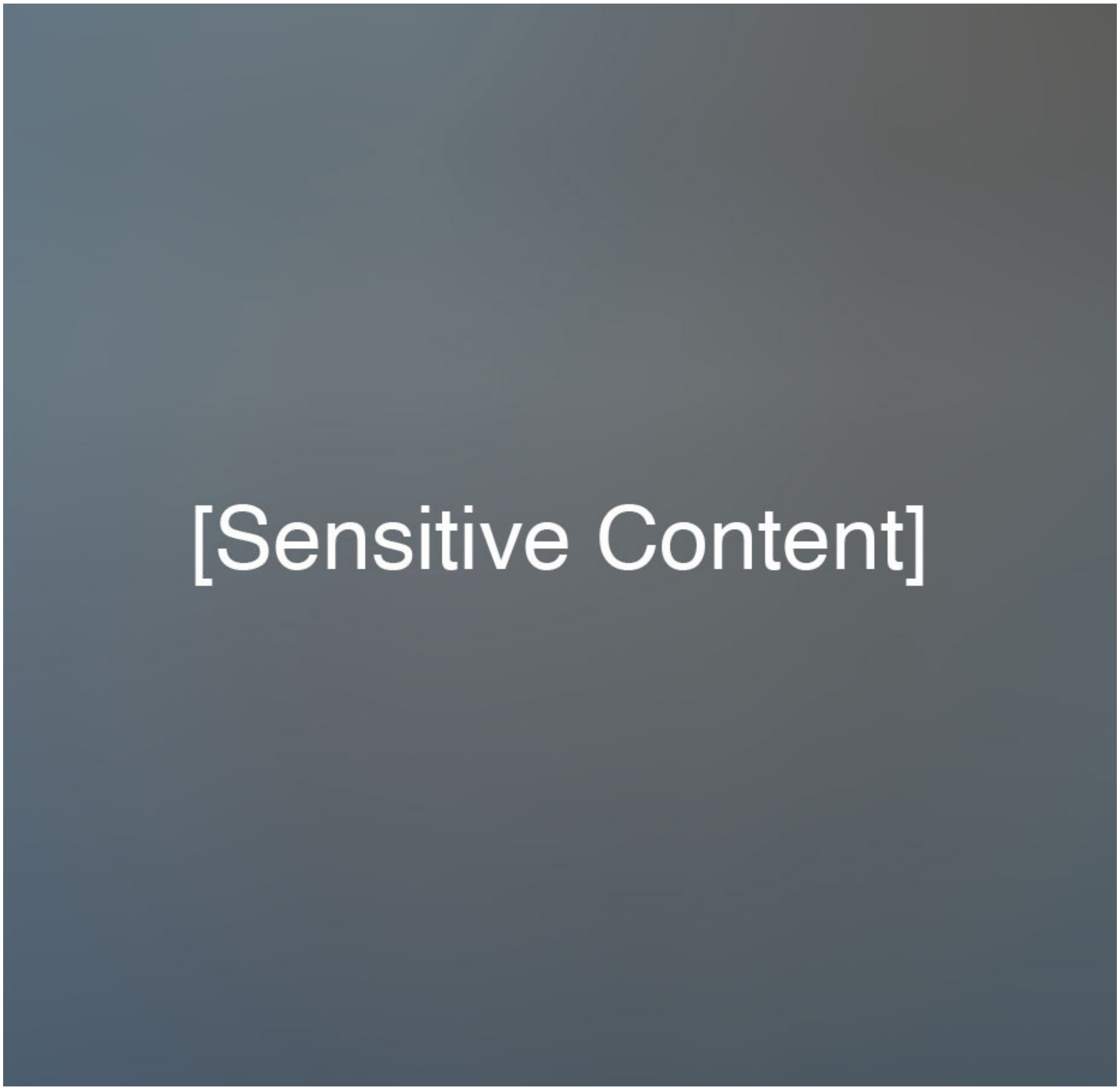


Figure 7.45. *Anterior view of the Burial 14 cranium.*

After cleaning the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right and Left Radii
Teeth #1-5 ,7-15, 18, 20-31	Right and Left Os Coxae
Right and Left Ribs	Right and Left Femora
Cervical, thoracic, lumbar and sacral vertebrae	Right Patella
Right and Left Clavicles	Right and Left Tibiae
Right Scapula	Right and Left Fibulae
Right and Left Humeri	Manual elements
Right and Left Ulnae	Pedal elements

Sex

This individual is female. Traits of Phenice (1969) are observable on the left os coxa, which demonstrates a ventral arc, subpubic concavity, and a ridged ischiopubic ramus. Cranial traits (Figure 7.46; Buikstra and Ubelaker 1994) have predominately feminine morphology, including a small mastoid process, sharp supraorbital margins, a flat glabella region, and a small mental eminence. Notably, the nuchal crest is exceptional by being masculine in morphology.

Ancestry

This individual is metrically similar to groups of African descent and may have identified as Black. Morphological ancestry estimation is indeterminate, due to poor preservation of the facial skeleton. Craniometric analysis of this individual in comparison to the female populations in the Fordisc forensic database (Jantz and Ousley 2005, version 3.1.321) indicates this individual is most similar to the Black female population, with a posterior probability of 0.832 and typicalities greater than 0.4. Comparison to the database of White and Black females from the 19th and 20th centuries yielded closest similarity to 19th century Black females (posterior probability 0.745 and typicalities above 0.7).

Age

This woman is middle-aged, greater than 40 years. The medial clavicles are fused and there is arthritic lipping to the distal femoral condyles and some vertebrae. The left pubic symphysis indicated a mean age of 38.2 years and a 95% confidence interval range of 26 to 70 years according

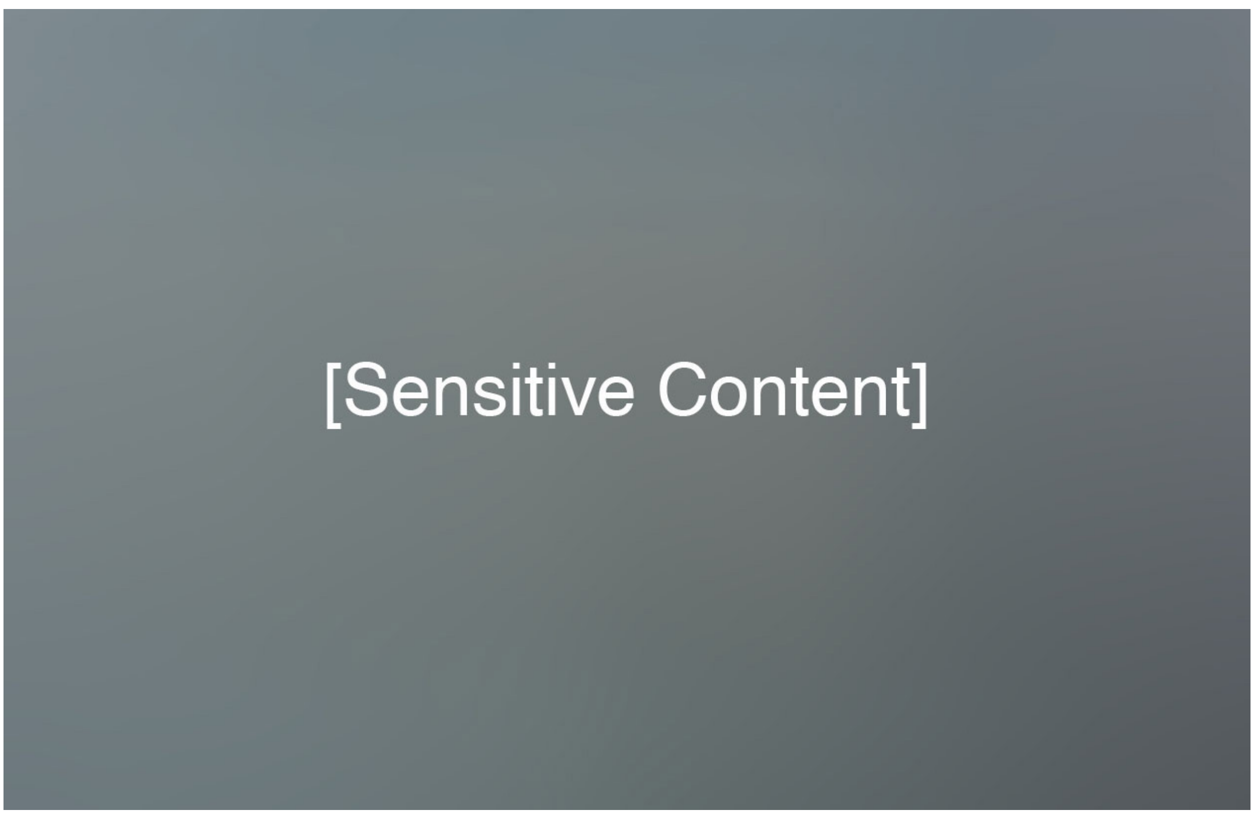


Figure 7.46. *Maxillary dentition of Burial 14.*

to the technique of Suchey-Brooks (Brooks and Suchey 1990; Figure 7.47). Changes to the iliac auricular surface (Chamberlain and Buckberry 2002) indicate an age range of 39 to 91 years. Dental attrition is progressive and supports the middle-aged designation rather than the upper limits of the age ranges.

Stature

Based on the classification of Black female, stature is estimated at 64.1 inches +/- 3.1 inches using the combined lengths of the humerus and tibia and regression formula from Fordisc version 3.1.321. The formula used is:

Stature [64.1 inches] = 0.05849 * HUMXLN+TIBXLN (682 mm) + 24.26.

Individualizing Traits or Anomalies

No individualizing traits or anomalies are observed in these fragmentary skeletal remains.

Antemortem or Pathological Conditions

Resorption of the buccal alveolar margins of teeth 18-23 (tooth 19 is absent) is noted. An abscess is recorded at the alveolus of tooth #17, and this tooth along with #19 and 32 had been lost antemortem. Minor arthritic lipping is noted on the vertebrae and distal femoral condyles.

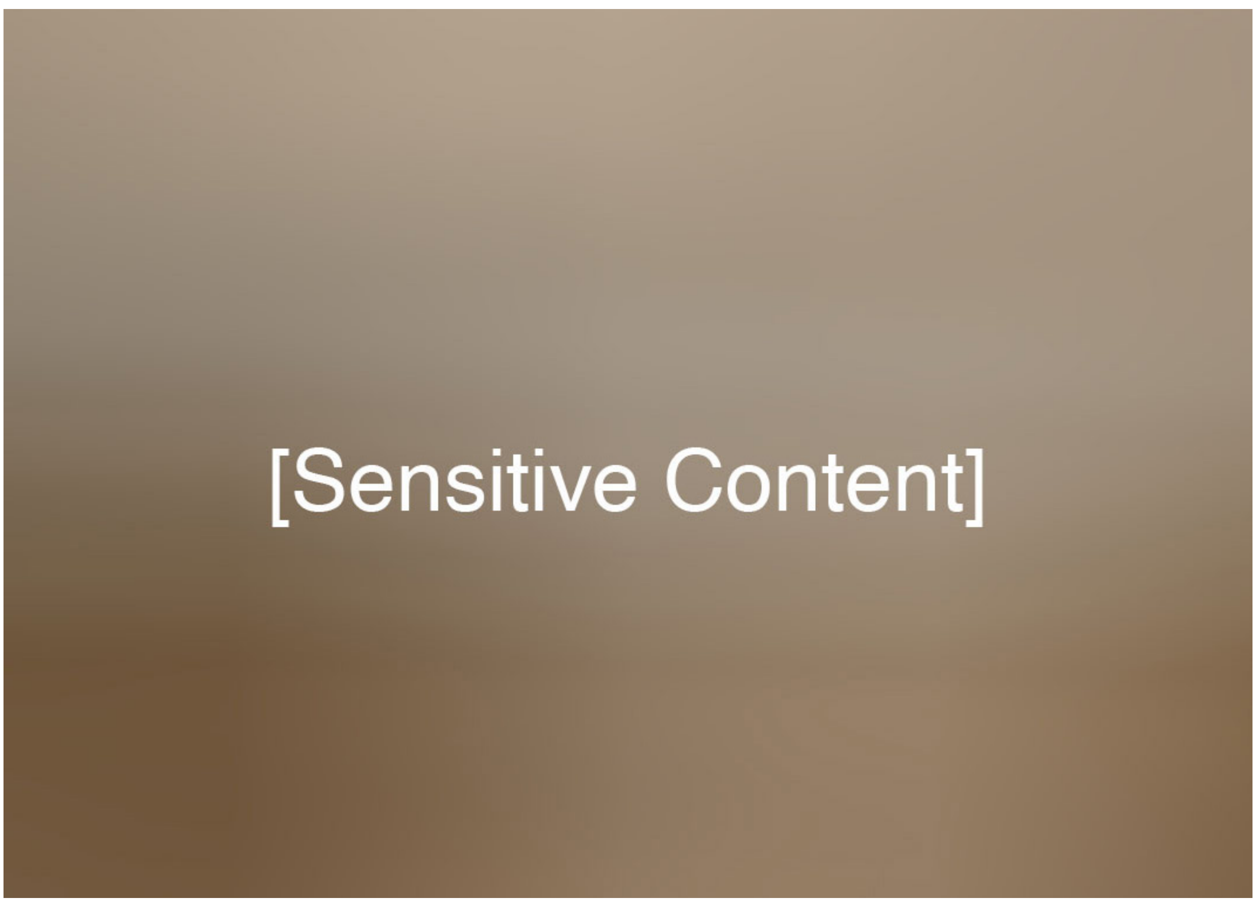


Figure 7.47. *The left pubic symphysis from Burial 14.*

Perimortem Trauma

No signs of trauma associable with a cause of death are observed.

Postmortem Damage

Skeletal fragmentation and staining of bones from decomposition and soil is consistent with prolonged burial; the overall condition is similar to others in this exhumation cohort.

DNA Sampling

Two petrous temporals and teeth #2-5, 7-15, 20-22, and 25-29 were retained as samples for later DNA analysis (Figure 7.48).

Summary of Conclusions and Opinions

The individual exhumed from Burial 14 and accessioned as Oaklawn Unknown #11 is a Black female in her middle age, older than 40 years and slightly arthritic, but not elderly. She was approximately 5 feet 4 inches in height. While her skeletal remains are in somewhat better shape than others in this cohort, in that her cranial vault, parts of her pelvic girdle, and a few long bones are intact, there are no signs of trauma relatable to a cause of death, or features that might have made her identifiable in life, preserved in these remains. Two petrous temporals and almost her entire recovered dentition are retained for DNA analysis.

Based on biological sex and coffin style, this individual does not possess most features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the temporal context of her burial.

Figure 7.48. *DNA specimens retained for Burial 14 (left) and bundled remains (right).*

Burial 15

Tulsa Race Massacre Investigation Burial Number: 15
Oaklawn Unknown Number: 3
Field Catalog Number: 106

Condition of Remains

These skeletal remains are friable and fragmentary (Figure 7.49). Butvar was applied in the field to the cranium, pelvis, and upper and lower limb joints. The neurocranium (cranial vault) is intact, but facial bones are not evident. A glass fragment, and several hand elements, are recovered from the pelvic cavity, and detritus is observed in the soil surrounding the remains. A fibrous substance is collected from within the cranium. This substance is not identified, but might have been preserved dura or fabric (Figure 7.50). Coffin remnants consisted of a few nails.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

After cleaning the following classes of skeletal elements were present:

Skull (cranium and mandible)	Right and Left Ulnae
Teeth #1-29, 31-32	Right and Left Radii
Hyoid	Right and Left Os Coxae
Sternum (manubrium)	Right and Left Femora
Right and Left Ribs	Right and Left Patellae
Cervical, thoracic, lumbar and sacral vertebrae	Right and Left Tibiae
Right Clavicle	Right and Left Fibulae
Right and Left Scapulae	Manual elements
Right and Left Humeri	Pedal elements

Sex

This individual is male. Traits of Phenice (1969) are noted on the os coxae, which demonstrated a vertical ventral ridge, a linear subpubic profile, and a broad ischiopubic ramus.

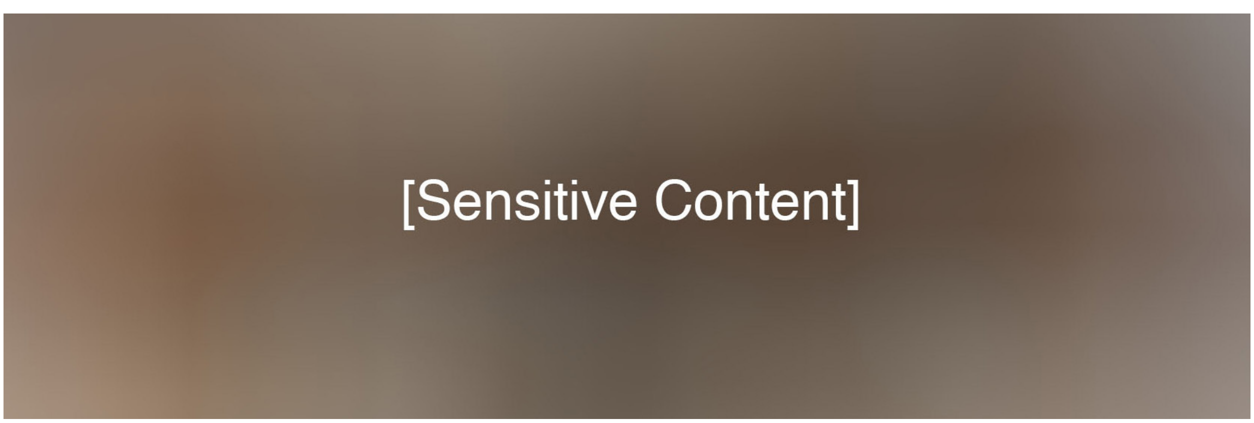


Figure 7.49. *Overview of the Burial 15 remains upon arrival in laboratory.*

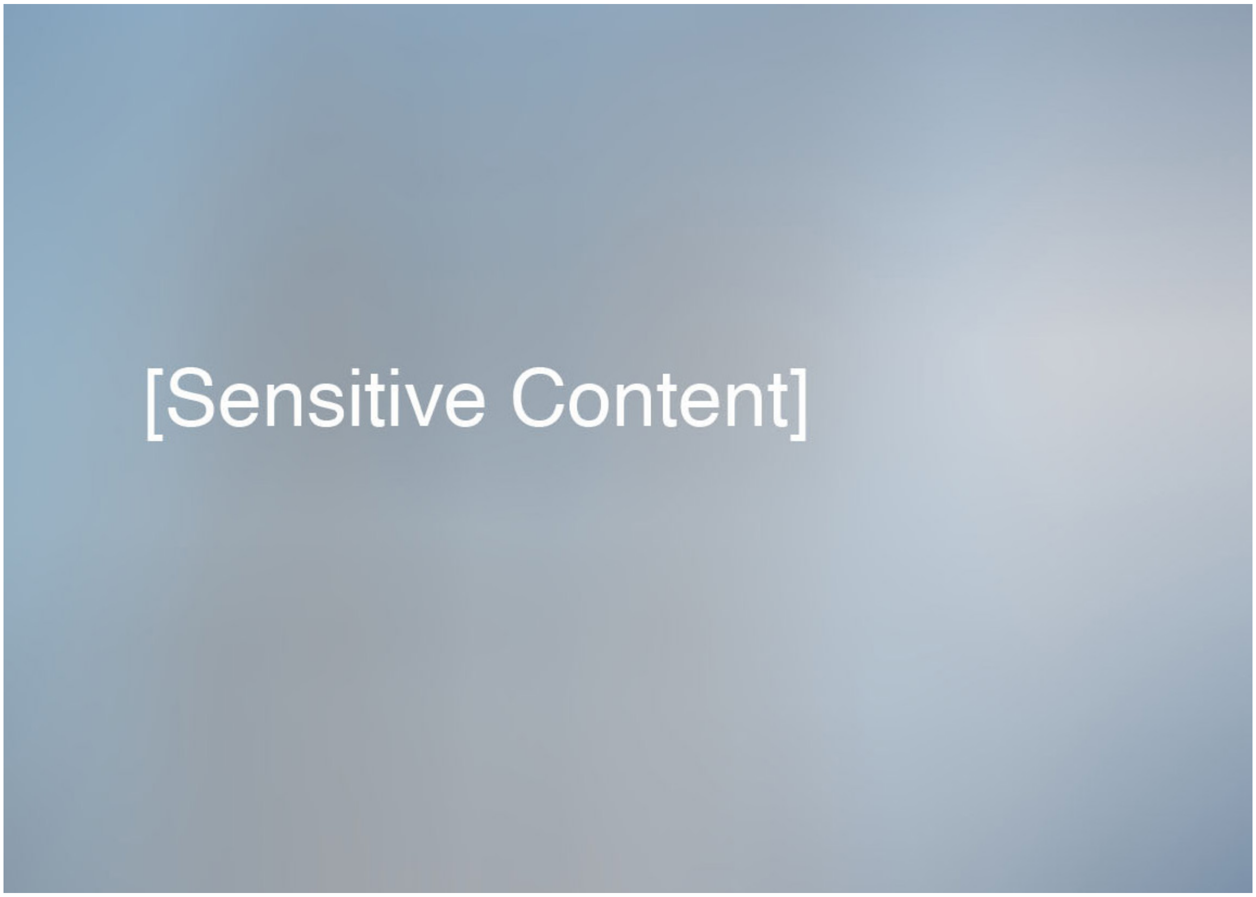


Figure 7.50. *Unidentified fibrous matter recovered from within the cranium from Burial 15.*

Ancestry

This individual is metrically similar to groups of African descent and may have identified as Black. Morphological ancestry estimation is indeterminate, due to poor preservation of the facial skeleton. Craniometric analysis of this individual in comparison to the male populations in the Fordisc forensic database (Jantz and Ousley 2005, version 3.1.321) indicates this individual is most similar to the Black male population, with a posterior probability of 0.450 and typicalities greater than 0.1. Comparison to the database of White and Black males from the 19th and 20th centuries yielded closest similarity to 19th century Black males (posterior probability 0.413 and typicalities above 0.1).

Age

This man is an adult, in early middle age, in his forties or later. All of his epiphyses are fused. Morphology of the pubic symphyses (Figure 7.51) is consistent with Suchey-Brooks (1990) Phase V, which has a mean age of 45.6 years and a range of 27 to 66 years. He has slight arthritic lipping on some cervical vertebrae and the right humeral head. Dental attrition is minimal despite the developmental abnormalities described below (see INDIVIDUALIZING TRAITS OR ANOMALIES below), and supports early middle age.

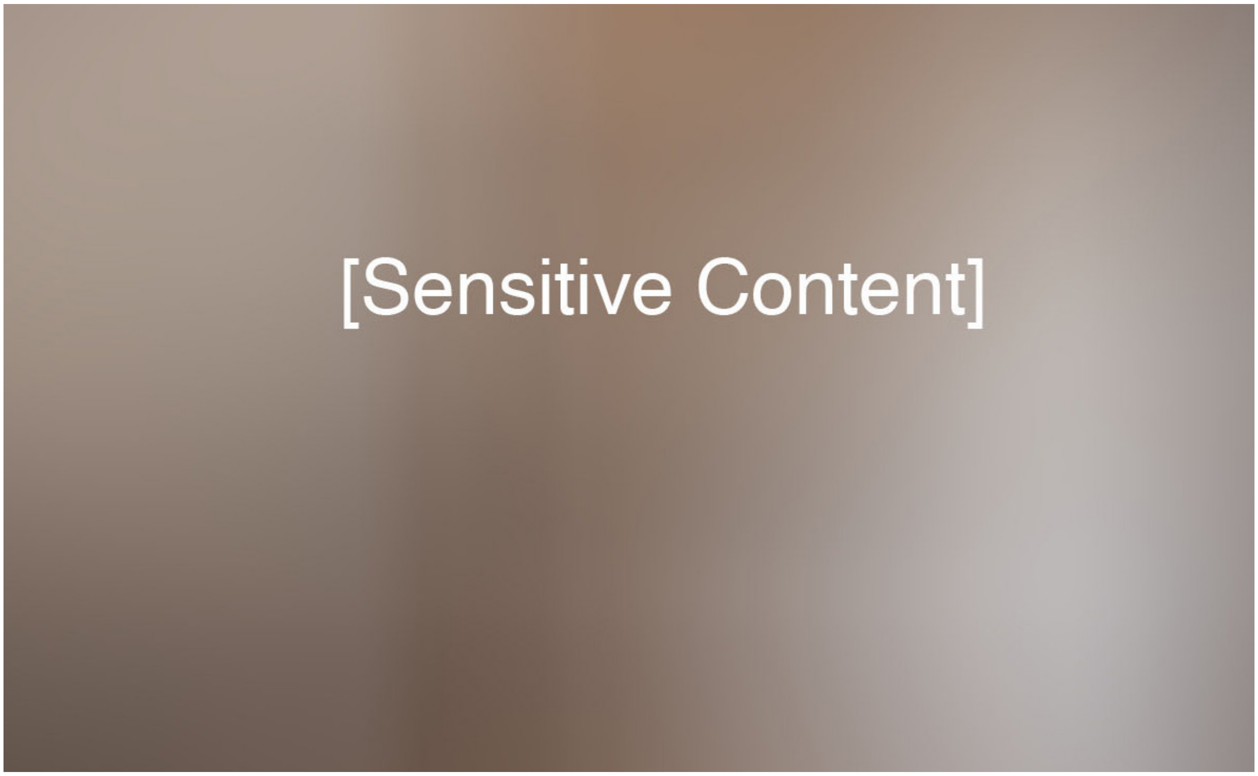


Figure 7.51. *Pubic symphyses from Burial 15.*

Stature

Based on the classification as Black male, stature is estimated at 65.4 inches +/- 2.4 using the combined lengths of the clavicle, femur and tibia and regression formula from Fordisc version 3.1.321. The formula used is:

Stature [64.5 inches] = 0.04584 * CLAXLN+FEMXLN+TIBXLN (977 mm) + 20.62.

Individualizing Traits or Anomalies

This individual has femoral torsion and bowed diaphyses (Figure 7.52). The tibiae are not affected. The bowing may be due to rickets or similar metabolic stress during childhood, or a sign of habitual activity such as horseback riding.

Antemortem or Pathological Conditions

The entire recovered dentition (the crown of tooth #24 and all of tooth #30 were lost antemortem) feature linear enamel hypoplasia (LEH; Figures 7.53 and 7.54). These features include linear rows of enamel pits, opacities in the enamel, and malformation of cusps, and occur due to moments when amelogenesis is intermittently halted during the development of the tooth. That all teeth are affected indicates this individual was under stress from approximately a few months prior to birth through his ninth or tenth year. LEH is associated with childhood diseases that cause high fevers, but other sources of stress are not excluded.

Porosity, an indicator of osteoarthritis, is observed on the right femoral head (Figure 7.55).

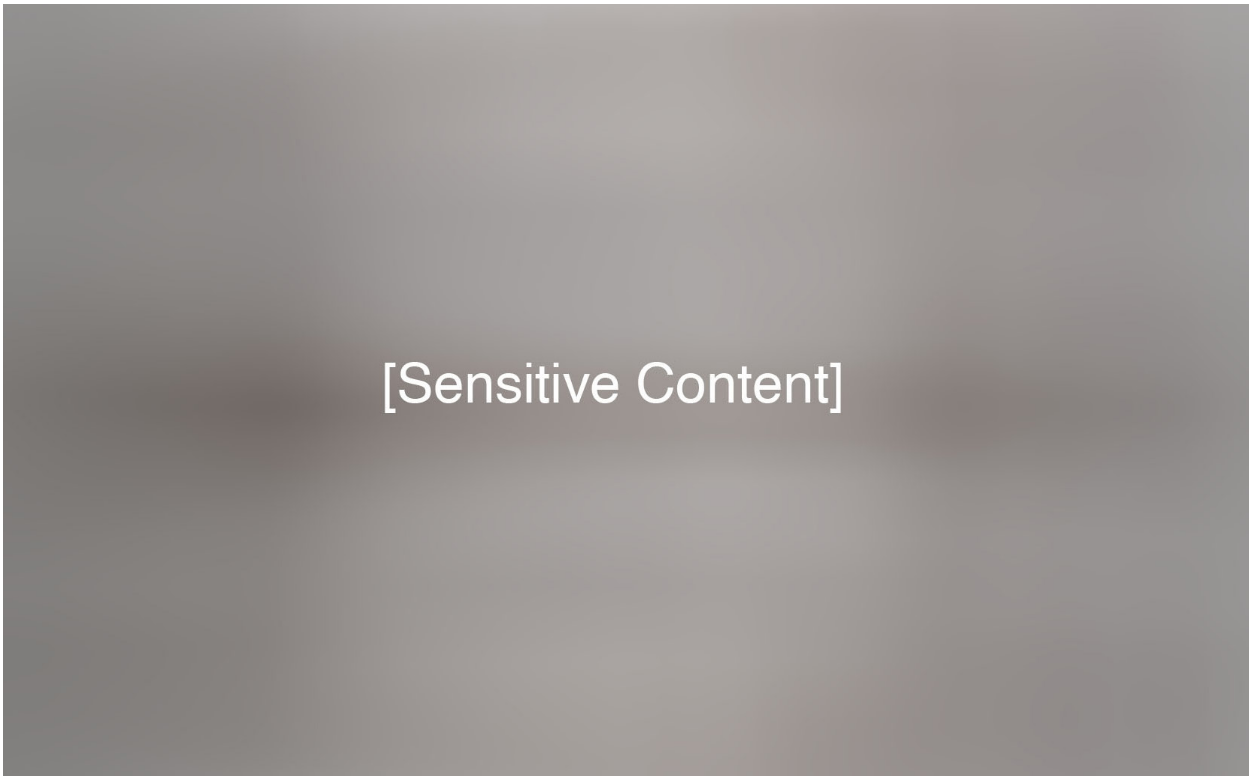


Figure 7.52. *Anterior views of the right and left femurs from Burial 15.*

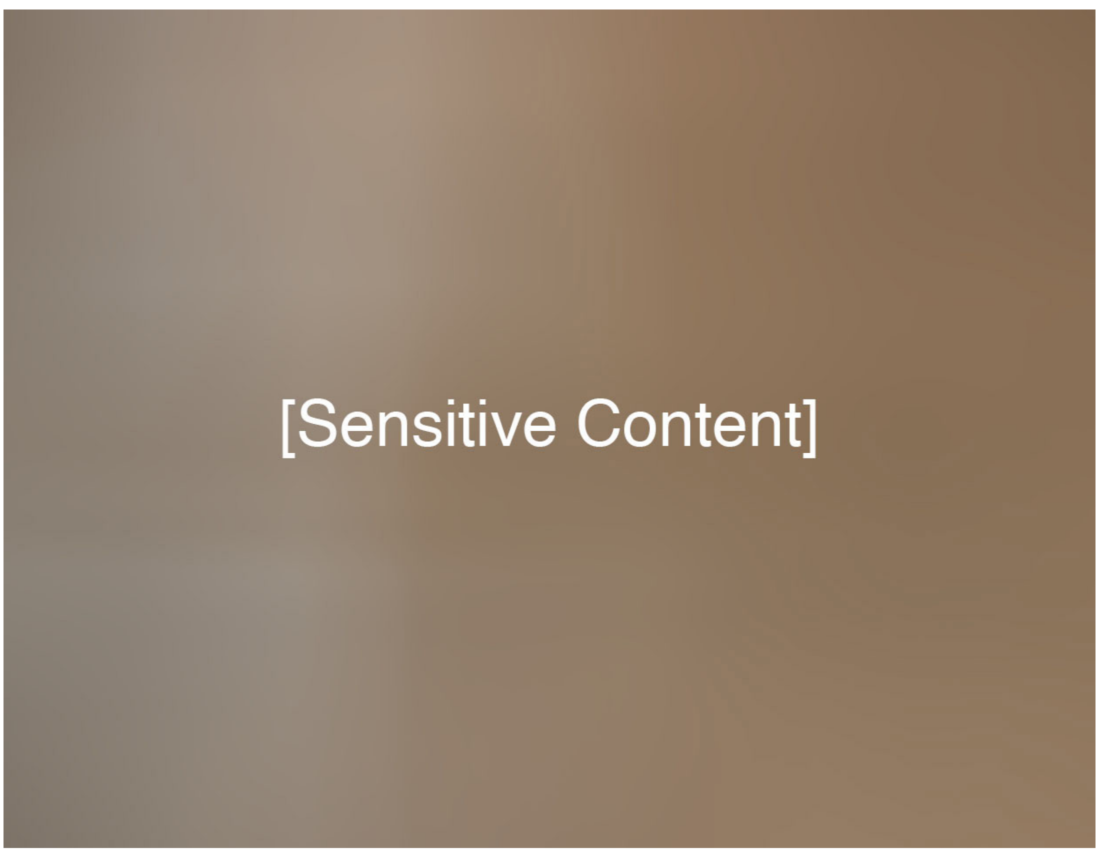
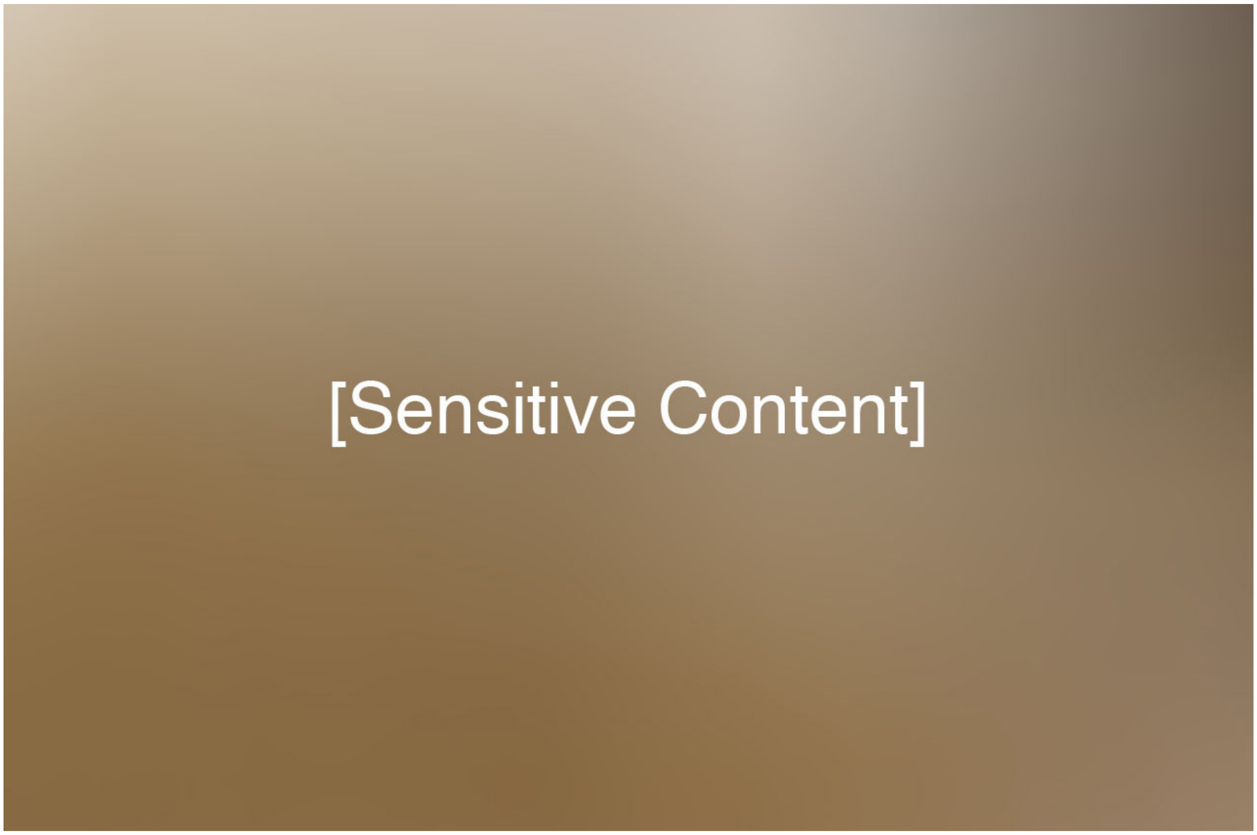


Figure 7.53. *Overview and close up of Burial 15 dentition.*



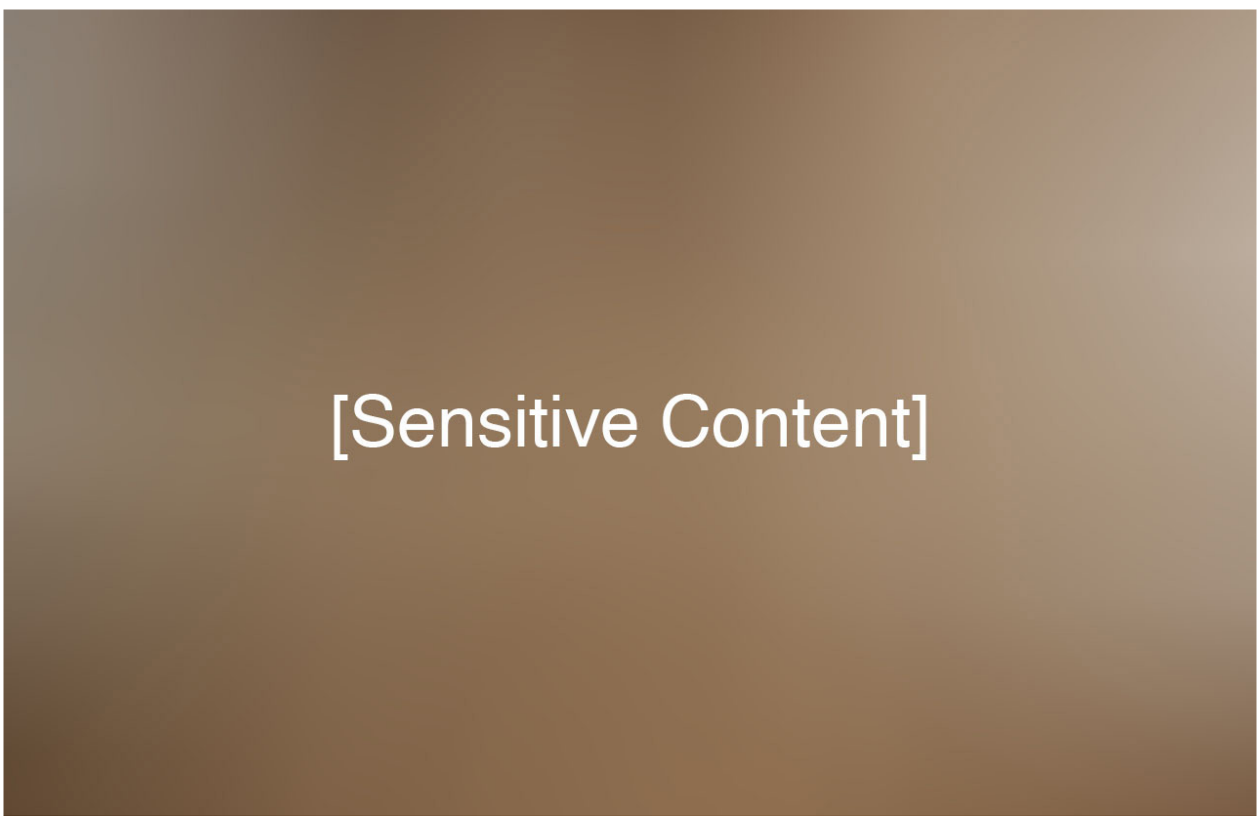


Figure 7.54. *Views of the linear enamel hypoplasia defects on the Burial 15 maxillary (top) and mandibular (bottom) dentition.*

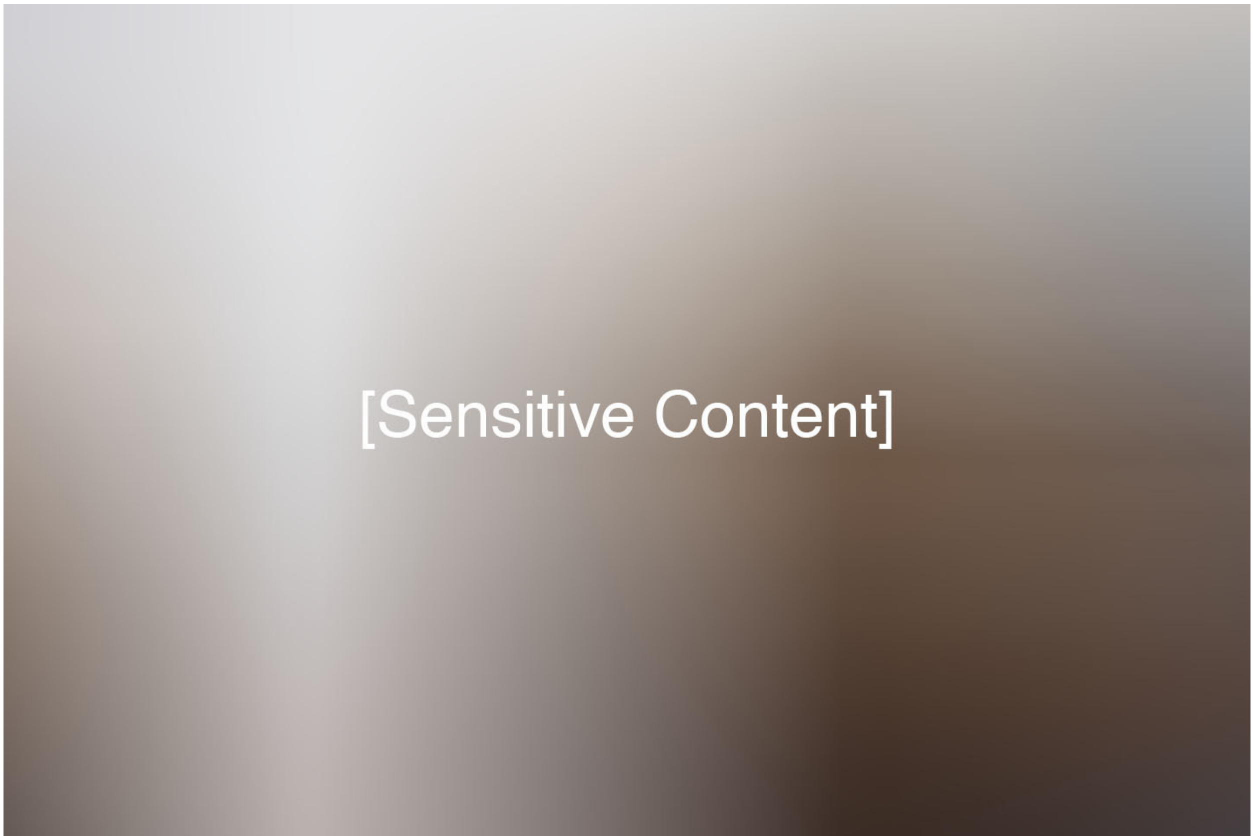


Figure 7.55. *Porosity in the right femoral head from Burial 15.*

Perimortem Trauma

No signs of trauma associable with a cause of death are observed.

Postmortem Damage

Fragmentation and staining is consistent with prolonged burial and similar to others in this exhumation cohort.

DNA Sampling

Two petrous temporals and teeth #8, 13, 23, 25 and 26 are retained as samples for later DNA analysis (Figure 7.56).

Summary Of Conclusions And Opinions

The individual exhumed from Burial 15 and accessioned as Oaklawn Unknown #3 is a male in his thirties or forties who may have identified as Black. His stature is approximately 5 feet 5 inches. In life his anterior teeth would have featured visible linear enamel defects, present as stains or lines across his teeth without close inspection. The bowing of his thigh bones suggest he possibly suffered rickets as a child, or was a habitual horseman, or both; other causes are not excluded. No features indicative of a cause of death is observed in these remains; however, this evaluation is limited by poor preservation of many skeletal elements. Preservation of these skeletal remains is consistent with others in this burial cohort, featuring fragmentation and earth-staining,

Figure 7.56. *DNA specimens retained for Burial 15 (left) and the bundled remains (right).*

but this individual also has fibrous matter recovered from his cranium, and detritus recovered from the fill soil inside his coffin. The fibrous material is not identified, and could be a remnant of neural tissue or be detritus washed into the cranium. Two petrous temporals and several teeth are retained for DNA analysis.

Based on biological sex and coffin style, this individual possesses multiple but not all features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. This man is not excluded from investigation as a victim, as the challenging preservation of the burial environment has limited assessment of the remains. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the context of his burial.

Burial 16

Tulsa Race Massacre Investigation Burial Number: 16
Oaklawn Unknown Number: 7
Field Catalog Number: 148

Condition of Remains

These skeletal remains are very friable and fragmentary. Some hand elements are intact, but few intact skeletal elements are observed (Figures 7.57 and 7.58). Butvar was applied to the cranium and long bones. A plaque (Figures 7.59) reading “AT REST” is observed on the pelvic cavity during exhumation. Radiopaque particles are scattered on the lumbar and pelvic area (Figure 7.60), but are not embedded or attached to any skeletal material, and are consistent with disintegration of this plaque. Small wood fragments, probably from the coffin, and a safety pin (Figure 7.61) near the right ilium are recovered in laboratory.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

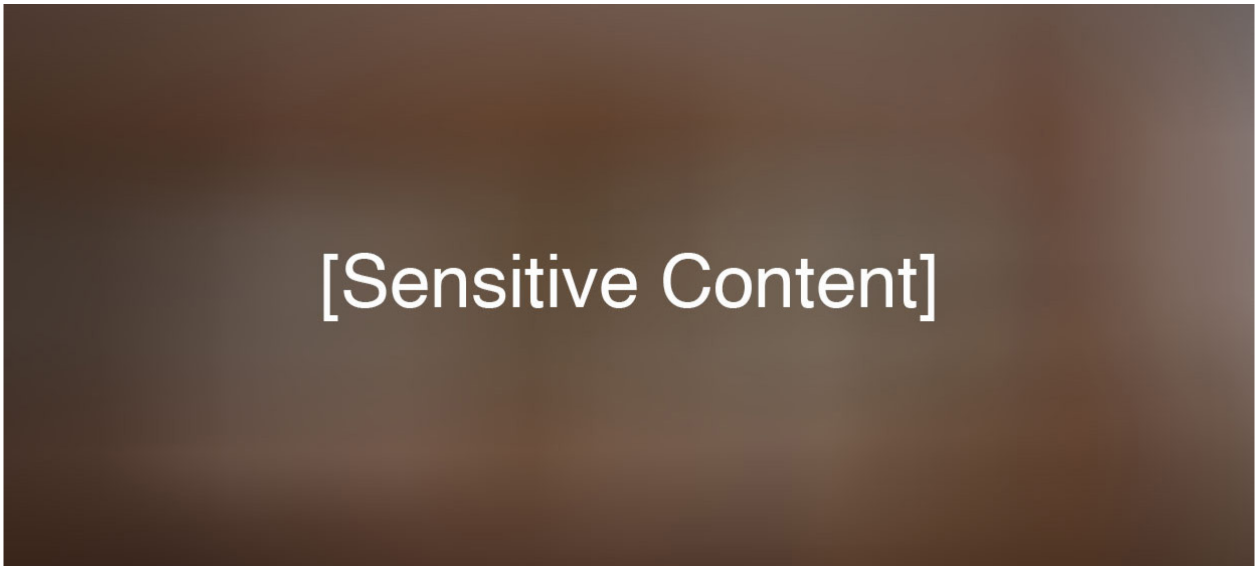


Figure 7.57. *Overview of the upper portion of the Burial 16 remains upon arrival in laboratory.*

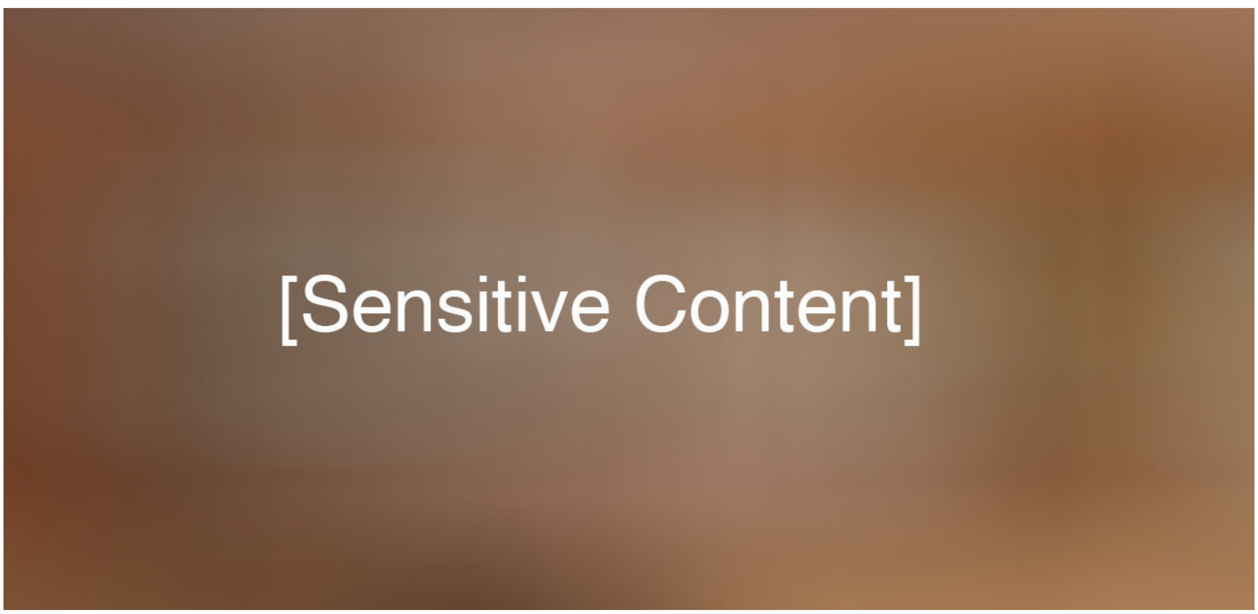


Figure 7.58. *Overview of the lower portion of the Burial 16 remains upon arrival in laboratory.*

After cleaning the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right and Left Radii
Teeth #1-8, 10-23, 25-32	Right and Left Os Coxae
Sternum (gladiolus)	Right and Left Femora
Right and Left Ribs	Right and Left Patellae
Cervical, thoracic, lumbar and sacral vertebrae	Right and Left Tibiae
Right and Left Clavicles	Right and Left Fibulae
Right and Left Scapulae	Manual elements
Right and Left Humeri	Pedal elements
Right and Left Ulnae	

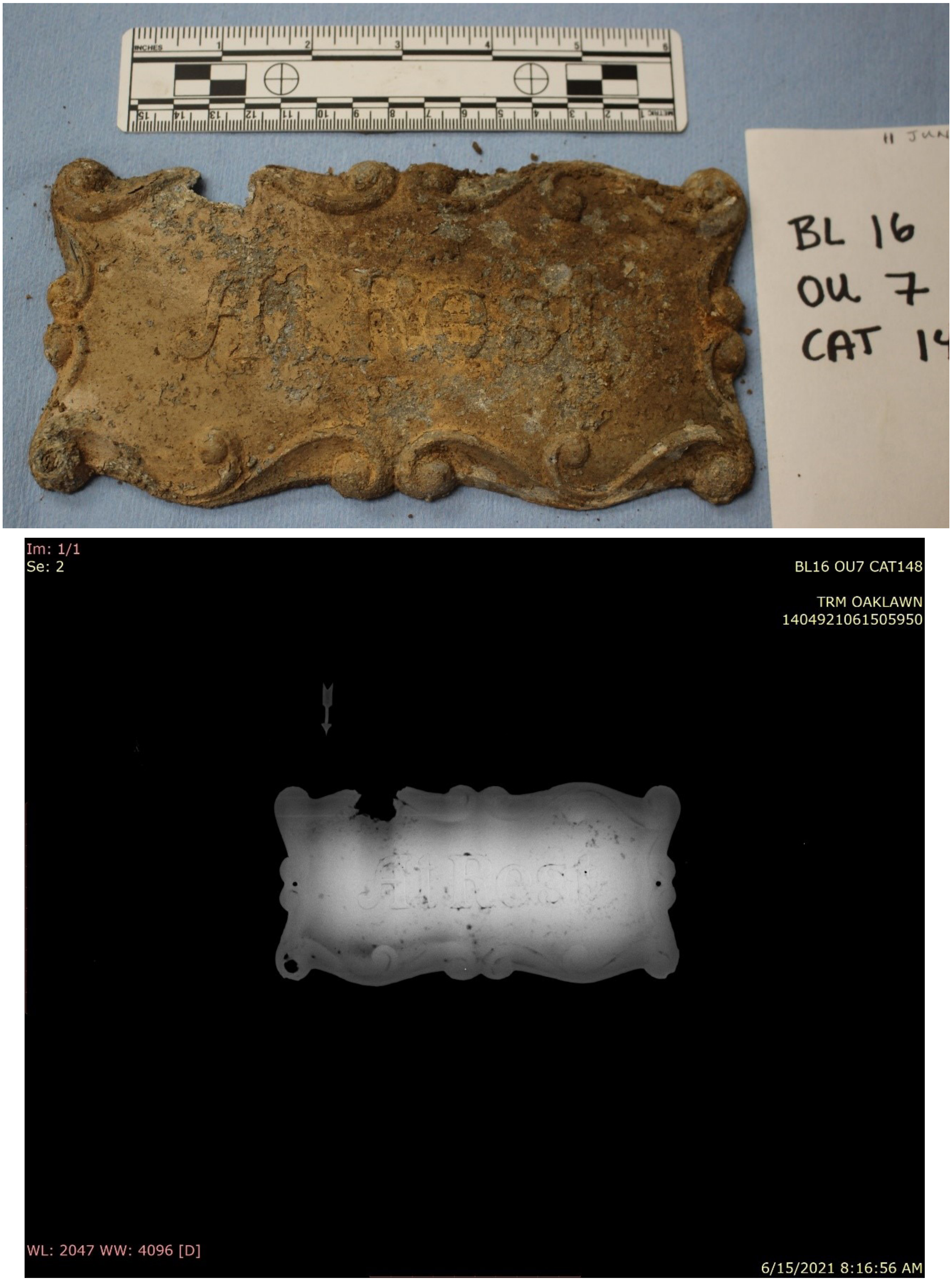


Figure 7.59. *"At Rest" plaque recovered from pelvic area of Burial 16.*

Sex

This individual is female. Cranial and pelvic traits (Buikstra and Ubelaker 1994) have predominately feminine morphology, including a small mastoid process, sharp supraorbital margins, a flat glabella region, a small mental eminence, presence of a well-developed preauricular sulcus, and a wide sciatic notch. Notably, the nuchal crest is exceptional by being robust and masculine in morphology.

Ancestry

Morphological ancestry estimation is indeterminate, due to poor preservation of the facial skeleton. Craniometric ancestry for this individual is speculative, being based on seven measurements obtained from the reconstructed cranium; with these constraints, this individually is most similar to groups of African descent. In comparison to the female populations in the Fordisc forensic database (Jantz and Ousley 2005, version 3.1.321), this individual is most similar to the Black female population, with a posterior probability of 0.644 and two typicalities lower than 0.05, indicating that it is acceptable to reject the hypothesis that this individual is in the Black Female population. Comparison to the database of White and Black females from the 19th and 20th centuries yielded closest similarity to 19th century Black females (posterior probability 0.643 and typicalities above 0.05). These results provide circumstantial support of Black identity in the context of remains buried in an area designated "Colored Potter's Field".

Age

This woman is middle-aged, in her forties or fifties. The medial clavicles are fused and there is evidence of osteoarthritis in the hip joints and some vertebrae. The auricular surfaces (Figure 7.62) are equivalent to Phases III and IV (Meindl and Lovejoy 1989).

Stature

Due to the fragmentation, stature is calculated from photogrammetric measurement of the left femur, imaged prior to exhumation. Based on the classification as Black female, using Fordisc version 3.1.321 19th Century sample, stature is estimated at 67.4 inches +/- 3.0 inches, with a 95% predictive interval. The formula used is:

Stature [67.4 inches] = 0.08996 * FEMXLN (481 mm) + 24.18.

Individualizing Traits or Anomalies

No individualizing traits or anomalies are observed in these fragmentary skeletal remains. Large muscle insertions are noted on the proximal ulna.

Antemortem or Pathological Conditions

Linear enamel hypoplasia is noted on teeth #6, 8, 10-16, 19-23, 27, and 28. This condition is associated with stress, often due to infections causing high fevers, during infancy and early childhood. Large caries are present on the occlusal surfaces of teeth #13 and 14 and tooth #31 (Figure 7.63). Signs of periodontal disease are noted in the maxilla (Figure 7.64), including resorption of the molar alveolar bone and porosity in the maxilla (hard palate and right internal maxillary sinus). Porosity is also observed on the endocranial surface of the left parietal (Figure

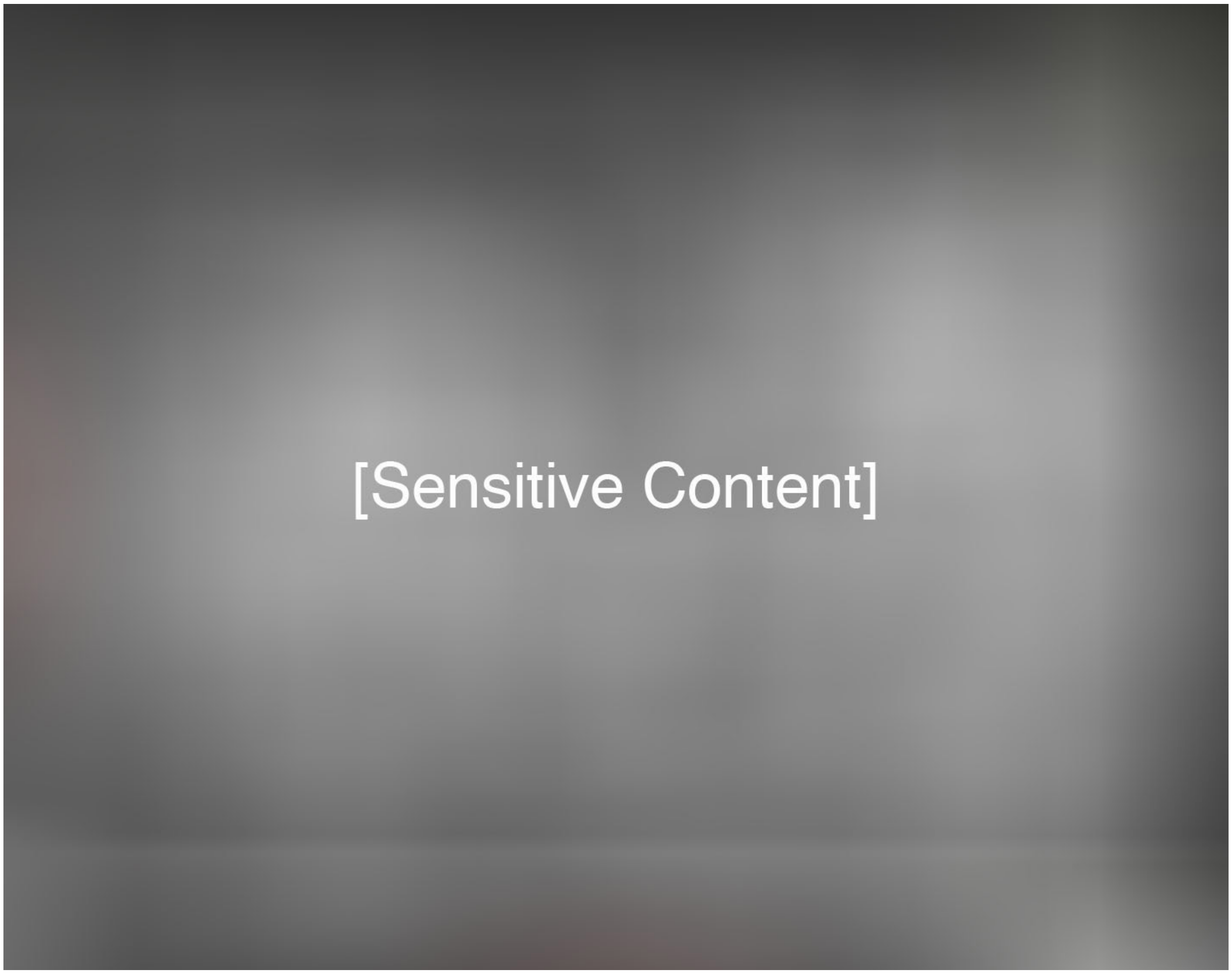


Figure 7.60. *Radiograph of the lumbar and pelvic area from Burial 16, showing scatter of radiopaque particles. The head of a safety pin is visible.*

Figure 7.61. *Safety pin from Burial 16*

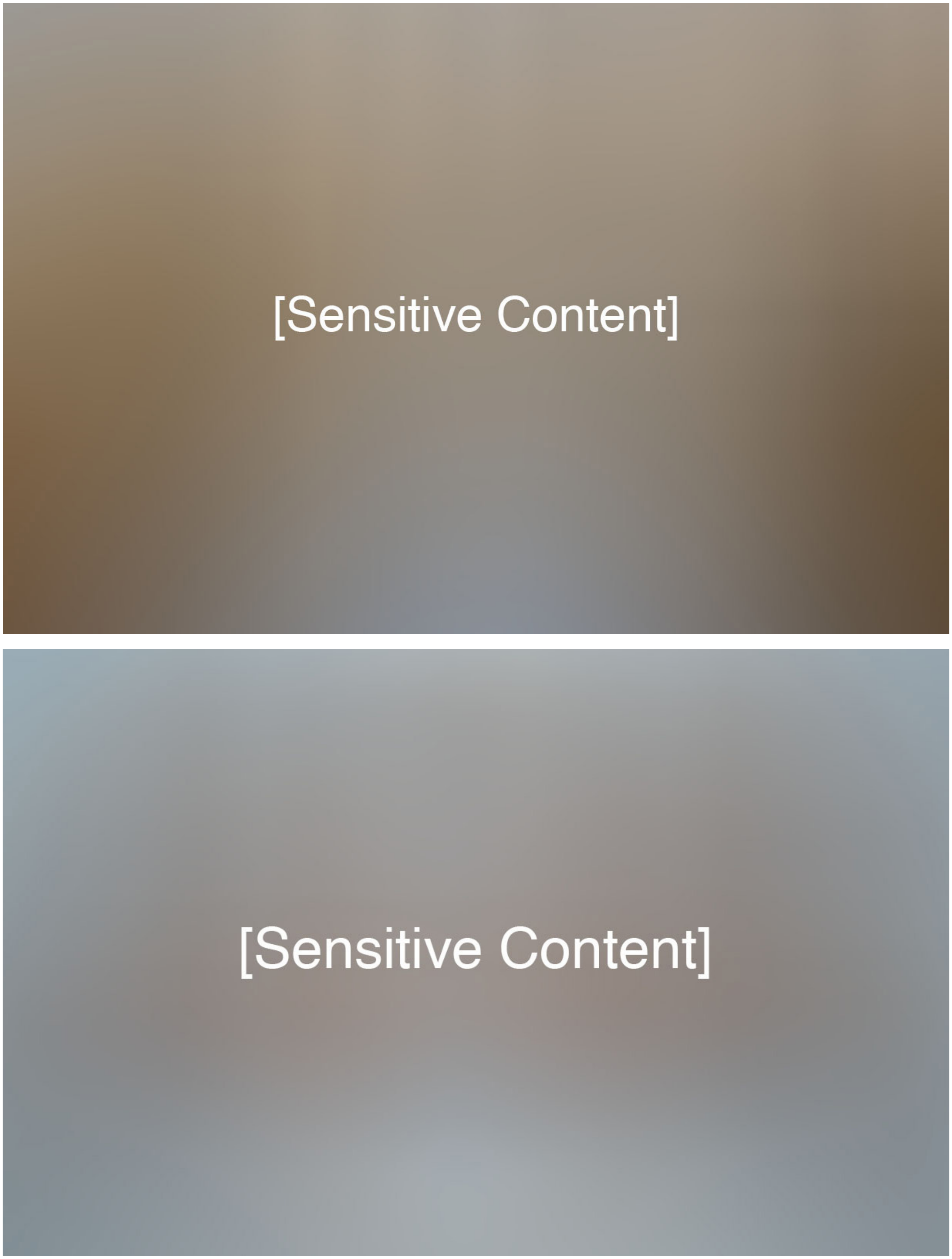


Figure 7.62. *Age changes in the pelvic auricular surfaces and proximal femora from Burial 16..*

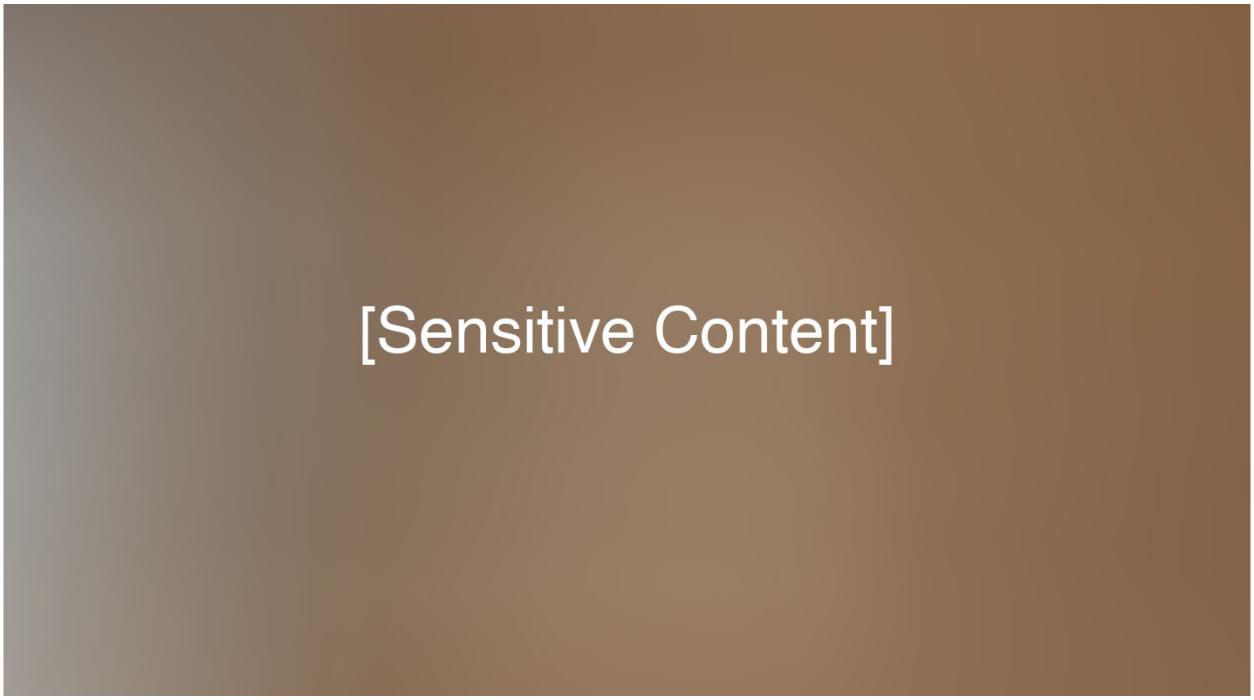


Figure 7.63. *Dentition from Burial 16.*

7.65). The periodontal disease may have been associated with or accompanied by a sinus infection, or other pathological condition.

Perimortem Trauma

No signs of trauma associable with a cause of death are observed.

Postmortem Damage

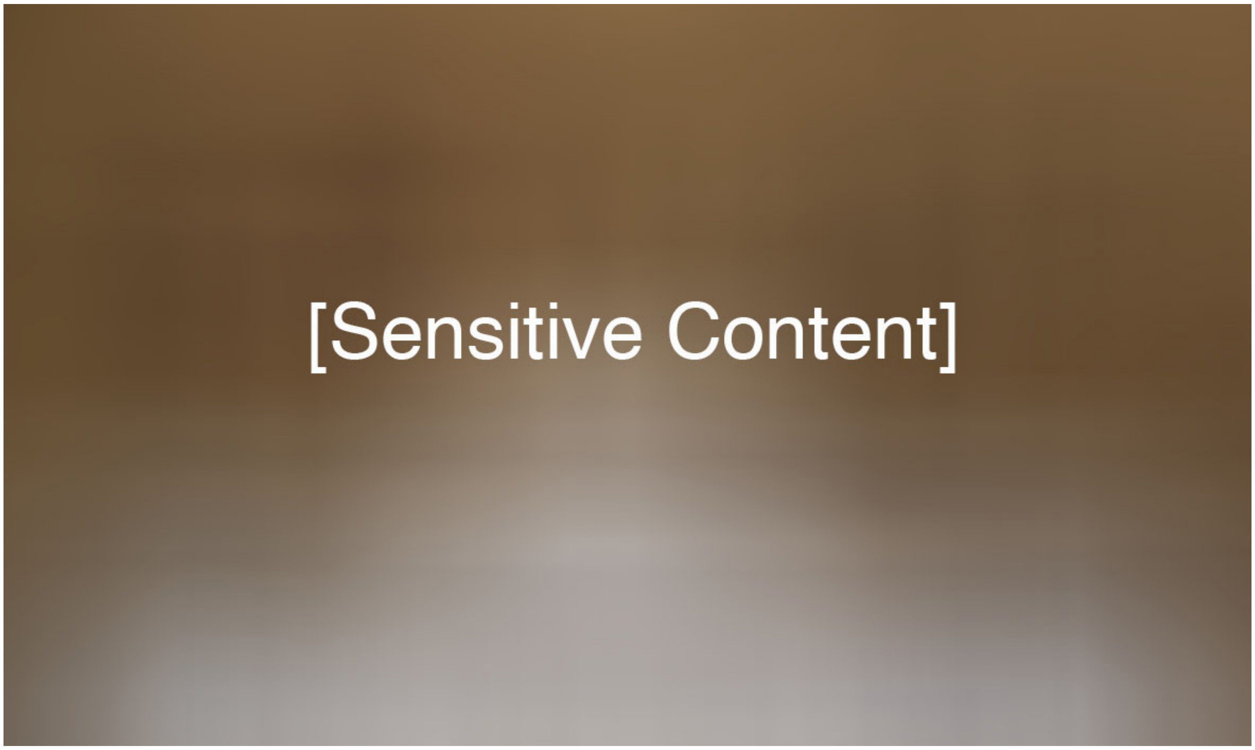
Very few intact elements are recovered with these remains. Staining is consistent with prolonged burial and similar to others in this exhumation cohort.

DNA Sampling

Two petrous temporals and teeth #7, 9, 12, 23, and 25-27 are retained as samples for later DNA analysis (Figure 7.66).

Summary of Conclusions and Opinions

The individual exhumed from Burial 16 and accessioned as Oaklawn Unknown #7 is an active, based on robusticity of her arms, probable Black female in her middle age, with an estimated stature of 5 feet 7 inches. Fragmentation of her remains is extensive. She is recovered from a coffin that bore a plaque reading “AT REST”, and a safety pin is found near her right hip bone. She had active periodontal disease, and possibly a sinus infection. No trauma associable with a cause of death is observed in her remains; however, this evaluation is limited by poor preservation of many skeletal elements. Two petrous temporals and several teeth are retained for DNA analysis.



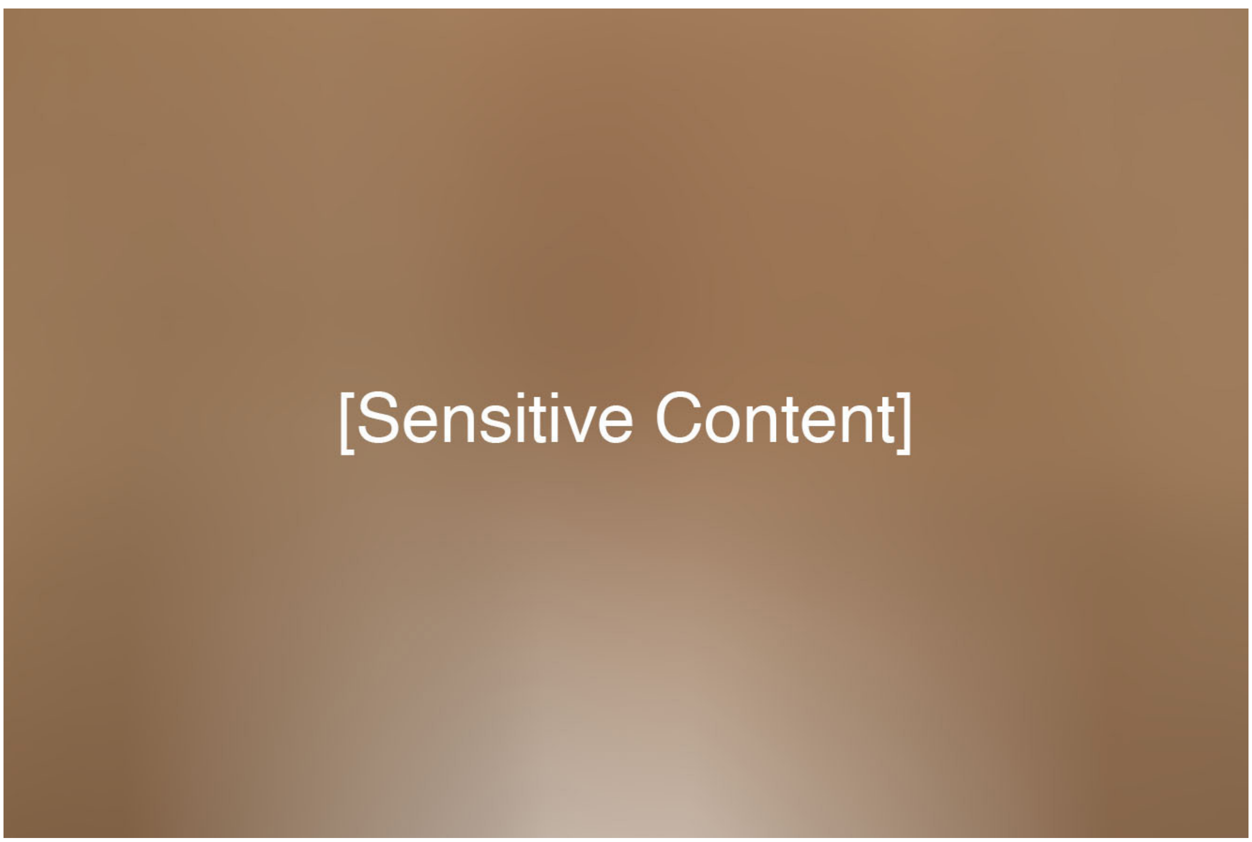


Figure 7.64. *Porosity of the right maxilla from Burial 16, in external view (top) and the enlarged view of the hard palate (bottom).*

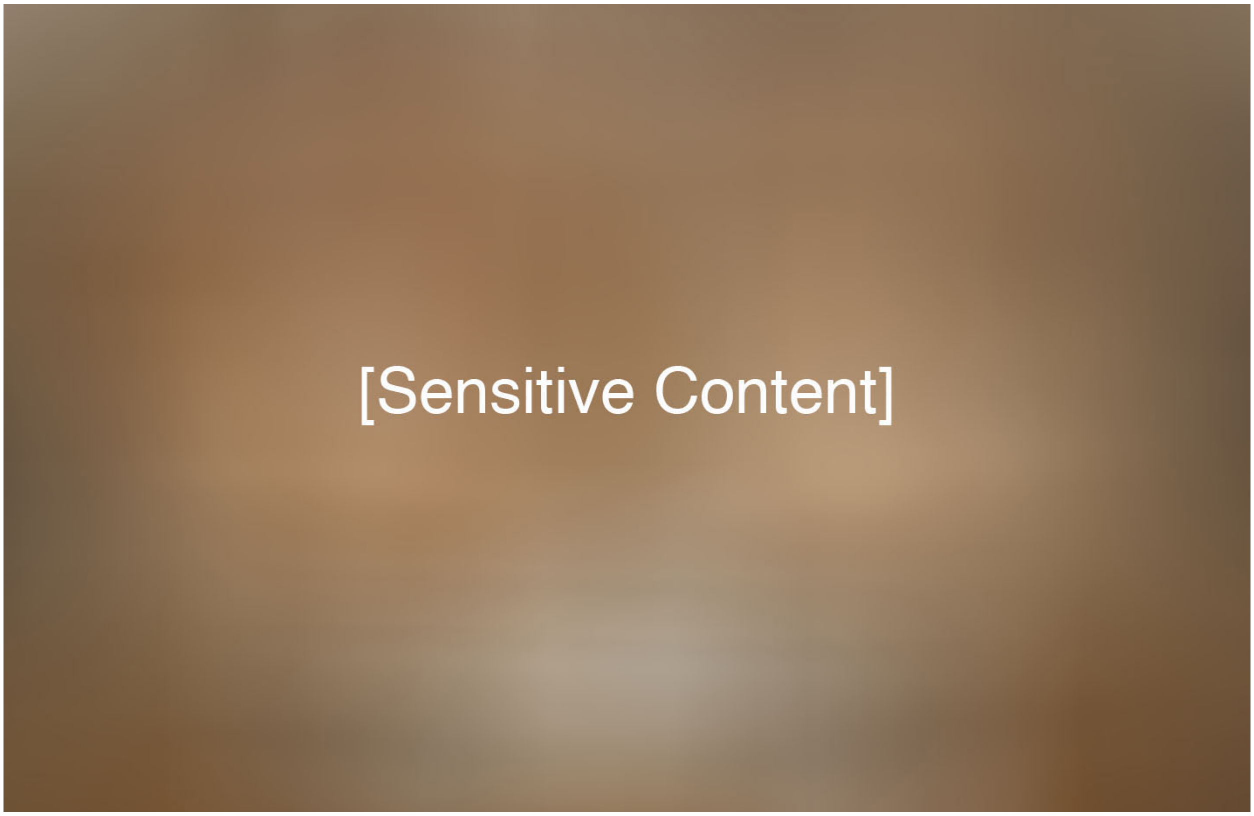


Figure 7.65. *Internal view of the right and left parietals from Burial 16.*

Figure 7.66. *DNA specimens retained for Burial 16 (left) and the bundled remains (right).*

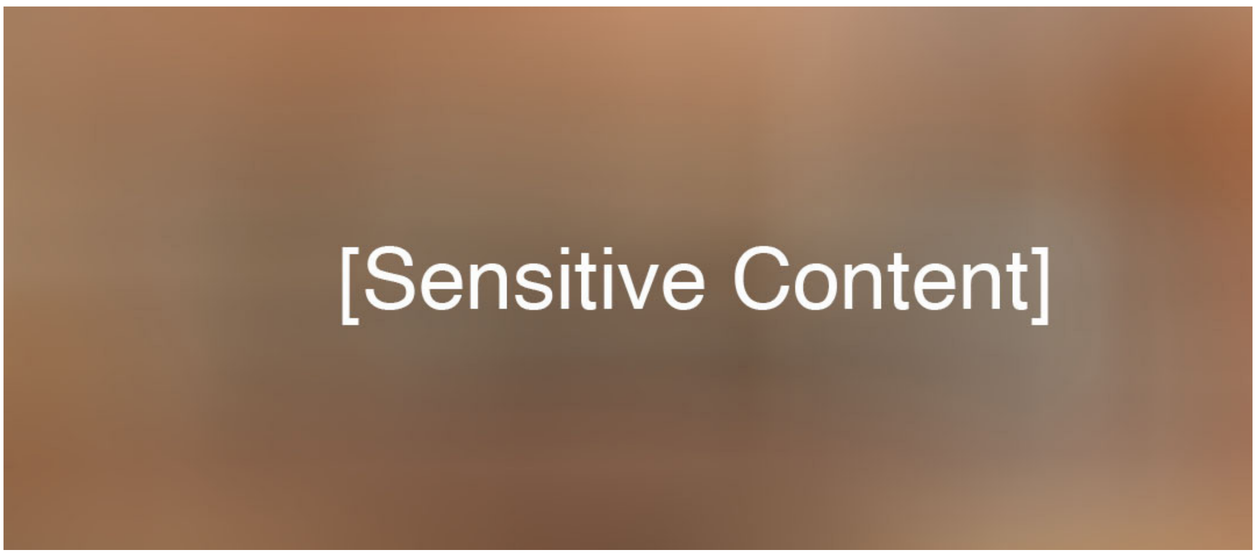
Based on biological sex and coffin style, this individual does not possess most features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the temporal context of her burial.

Burial 17

Tulsa Race Massacre Investigation Burial Number: 17
Oaklawn Unknown Number: 10
Field Catalog Number: 187

Condition of Remains

These skeletal remains are friable and very fragmentary. Many elements, especially vertebrae, ribs, and manual/pedal elements are represented by dust and fragments in the correct anatomical locations (Figure 7.67). Butvar was applied in the field to the cranium, pelvis, and lower limb elements. The neurocranium is present in large fragments but the facial skeleton is not evident. Evidence of repeated water intrusion in the coffin was observed in the soil layers beneath the cranium (Figure 7.68). The remains were exhumed from a coffin represented by large wood fragments and nails.



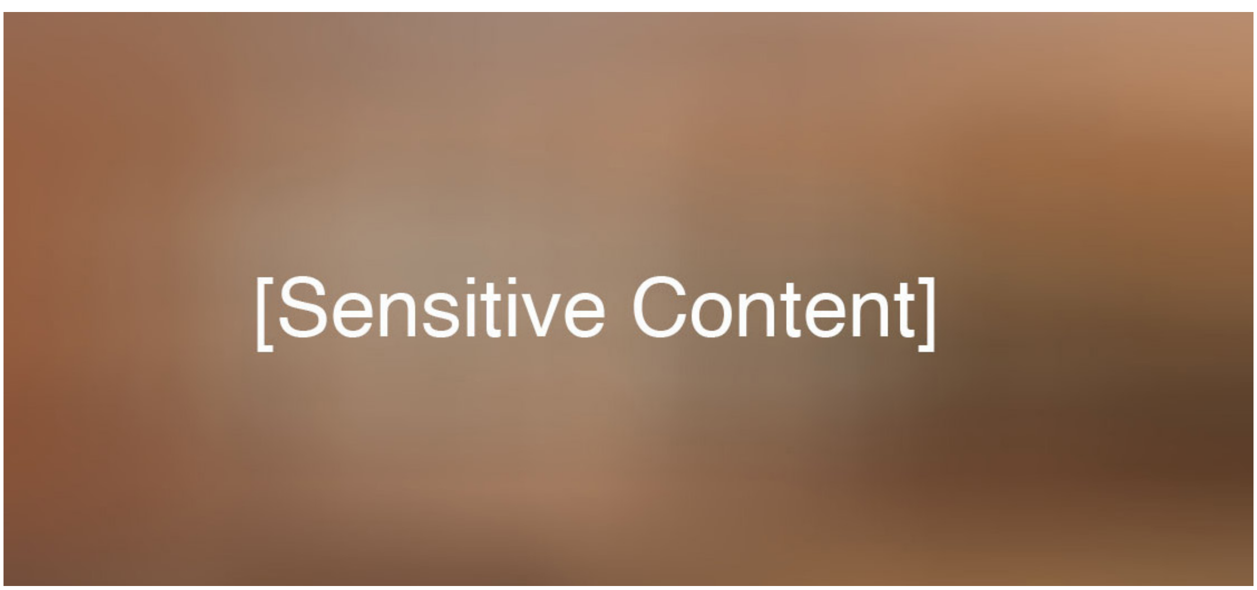


Figure 7.67. *Overview of the Burial 17 remains upon arrival in laboratory.*

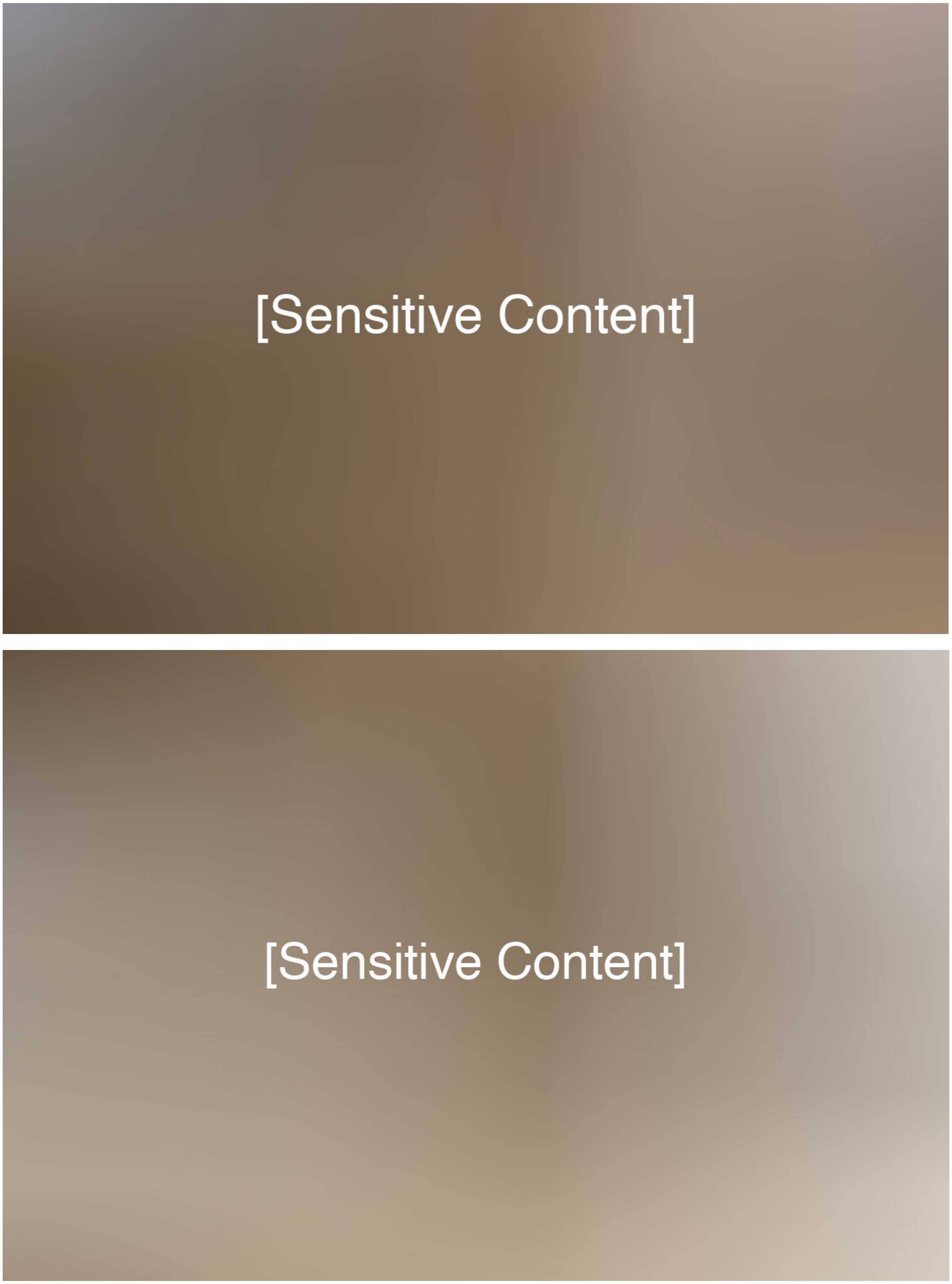


Figure 7.68. *Silt layers beside and beneath the cranium from Burial 17.*

Number Of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

After cleaning the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right and Left Radii
Teeth #1,2,4-17,20-30,32	Right and Left Os Coxae
Right and Left Ribs	Right and Left Femora
Cervical, thoracic, and lumbar vertebrae	Left patella
Right Clavicle	Right and Left Tibiae
Right and Left Scapulae	Right and Left Fibulae
Right and Left Humeri	Manual elements
Right Ulnae	Pedal elements

Sex

This individual is probably male. Surviving cranial traits (Buikstra and Ubelaker 1994) have predominately masculine morphology, including a wide mastoid process, moderately narrow sciatic notch, a rugose nuchal crest, broad supraorbital margins, a projecting supraorbital ridge, and a prominent mental eminence.

Ancestry

Morphological ancestry estimation is indeterminate, due to poor preservation of the facial skeleton (Figure 7.69). Craniometric ancestry for this individual is speculative, being based on nine measurements obtained from the reconstructed cranium; with these constraints, this individually is most similar to groups of African descent. In comparison to the four male populations (American Indian, Black, Hispanic, and White) in the Fordisc forensic database (Jantz and Ousley 2005, version 3.1.321), this individual is most similar to the Black male population, with a posterior probability of 0.501 and typicalities greater than 0.4.

Age

This individual is an adult in late middle age, greater than 40 years and probably in his fifties. Morphology of the iliac auricular surfaces (Figure 7.70: Chamberlain and Buckberry 2002) are indicative of Stage VI (mean age of 66.7, range 39-91). Most of the dentition presents significant occlusal wear, to dentin exposure, and molars #3, 18, 19, and 31 were lost antemortem.

Stature

Based on the classification of Black male, stature was estimated at 69.1 inches +/- 2.9 inches using the combined two femoral measurements and humerus length and regression formula from the 19th Century population in Fordisc version 3.1.321. The formula used is:

Stature [69.1 inches] = 0.03722 * FEMBLN+FEMXLN+HUMXLN (1310 mm) + 20.30.

Individualizing Traits or Anomalies

No significant individualizing traits or anomalies are observed in these remains. There is more occlusal wear to the teeth on the right side of the mouth (Figure 7.71). Linear enamel

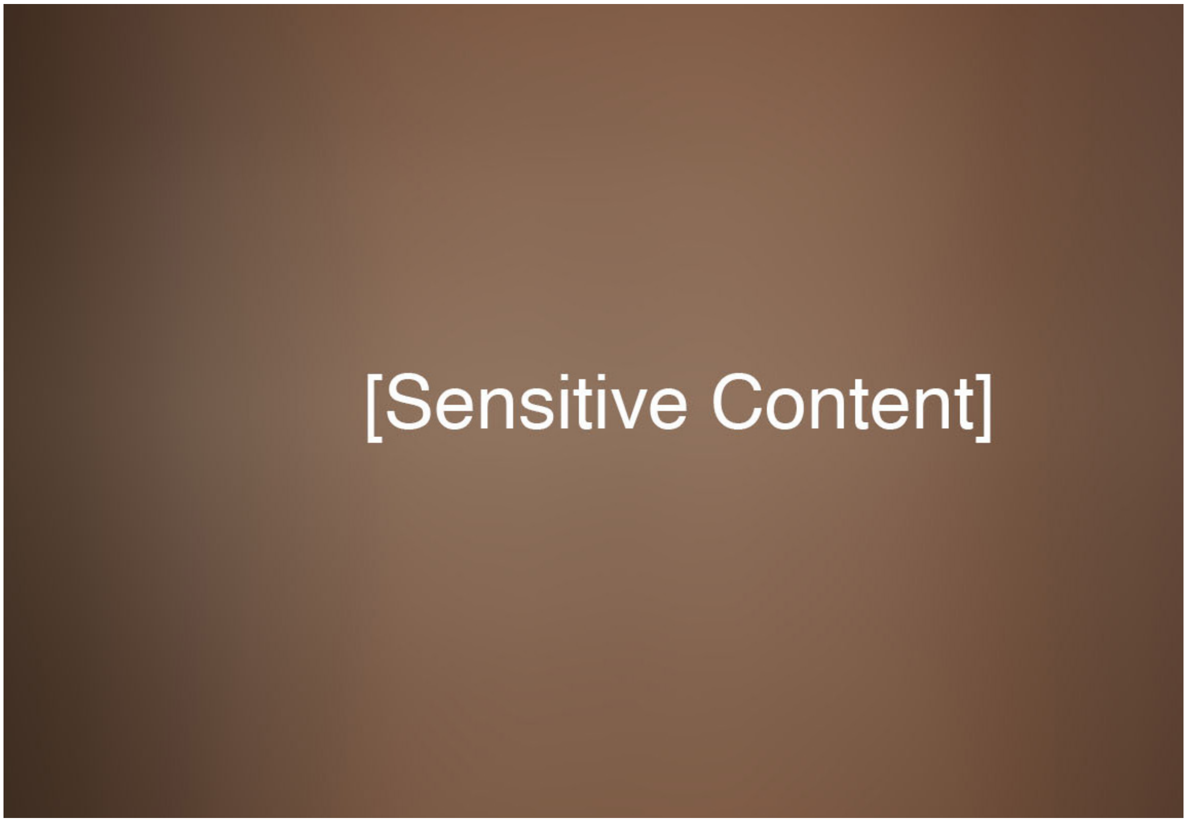


Figure 7.69. *Cranial fragments from Burial 17.*

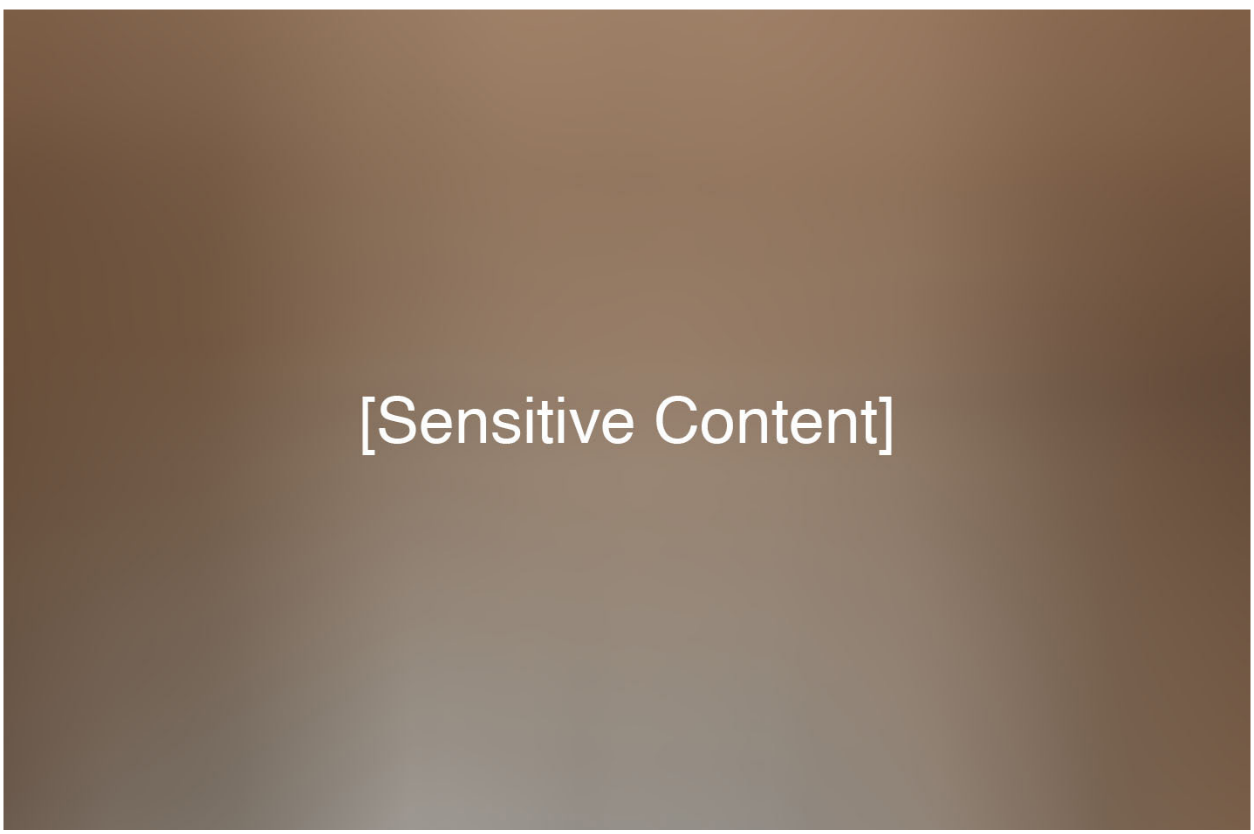
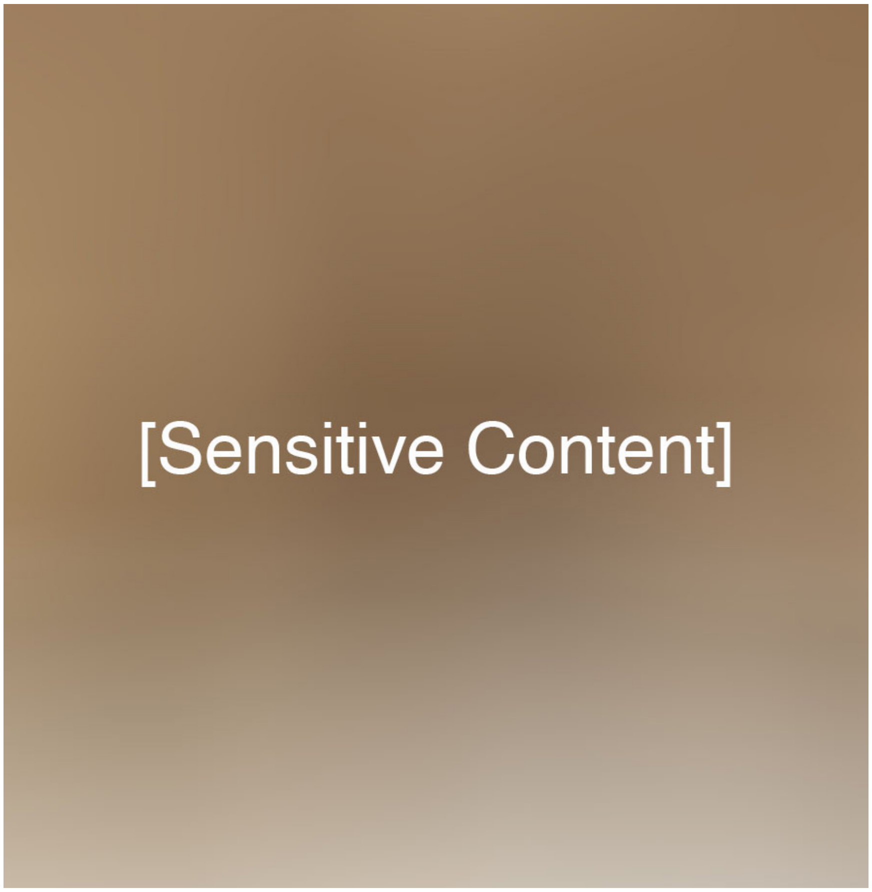


Figure 7.70. *Pelvic auricular surfaces from Burial 17.*



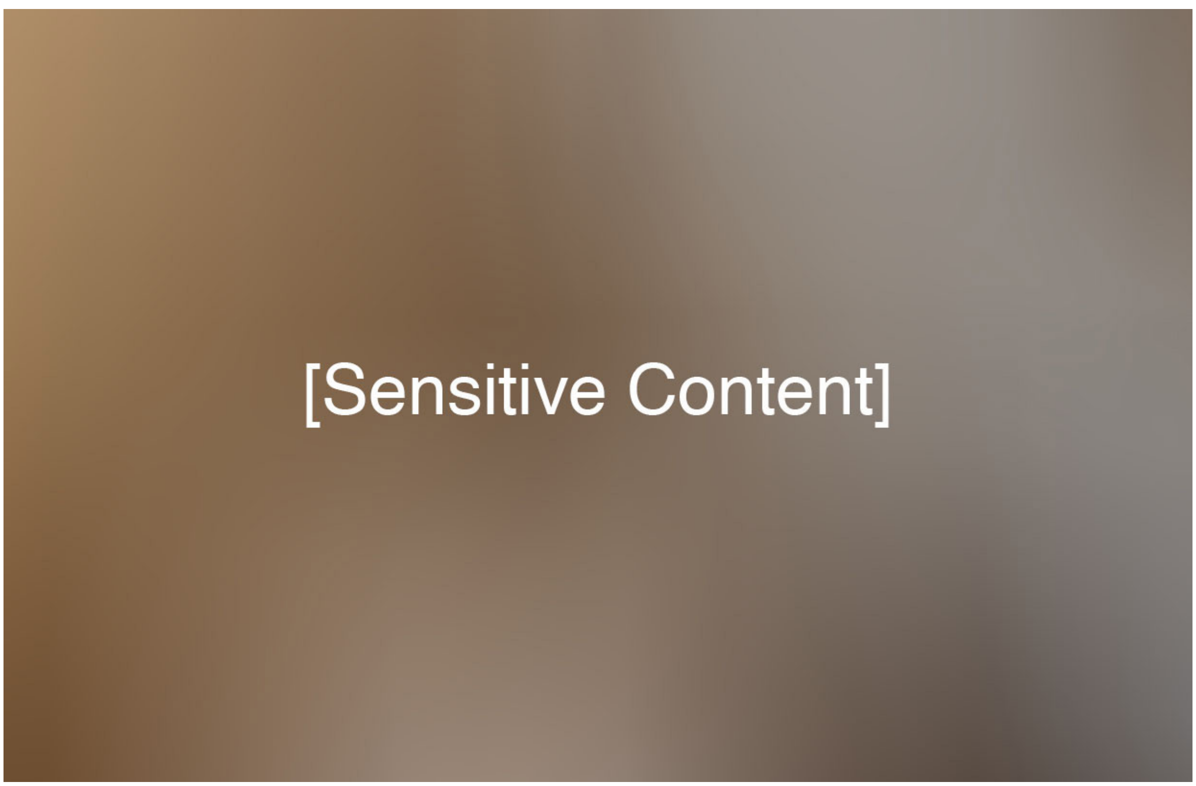


Figure 7.71. *Occlusal views of the maxillary and mandibular dentition from Burial 17, showing the asymmetric occlusal wear.*

hypoplasia is noted on teeth #2, 14, 15, and 21- 24.

Antemortem or Pathological Conditions

No signs of antemortem trauma or pathological conditions are observed in these remains.

Perimortem Trauma

No signs of trauma associable with a cause of death are observed in these remains.

Postmortem Damage

Fragmentation and staining is consistent with prolonged burial and similar to others in this exhumation cohort.

DNA Sampling

Two petrous temporals and teeth #1, 4, 6-12, 14, and 20-29 are retained as samples for later DNA analysis (Figure 7.72).

Summary of Conclusions and Opinions

The individual exhumed from Burial 17 and accessioned as Oaklawn Unknown #10 is a Black male in his late middle age. His stature is approximately 5 feet 9 inches. While no individualizing traits are observed, this gentleman had experienced metabolic stress during childhood, such that his upper molars and left lower incisors and one premolar bear defects of linear enamel hypoplasia. There are no signs of trauma associable with a cause of death in these remains. Preservation of these remains is consistent with others in this exhumation cohort.

Based on biological sex and coffin style, this individual possesses multiple but not all features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. This man is not excluded from investigation as a victim, as the challenging preservation of the burial environment has limited assessment of the remains. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the context of his burial.

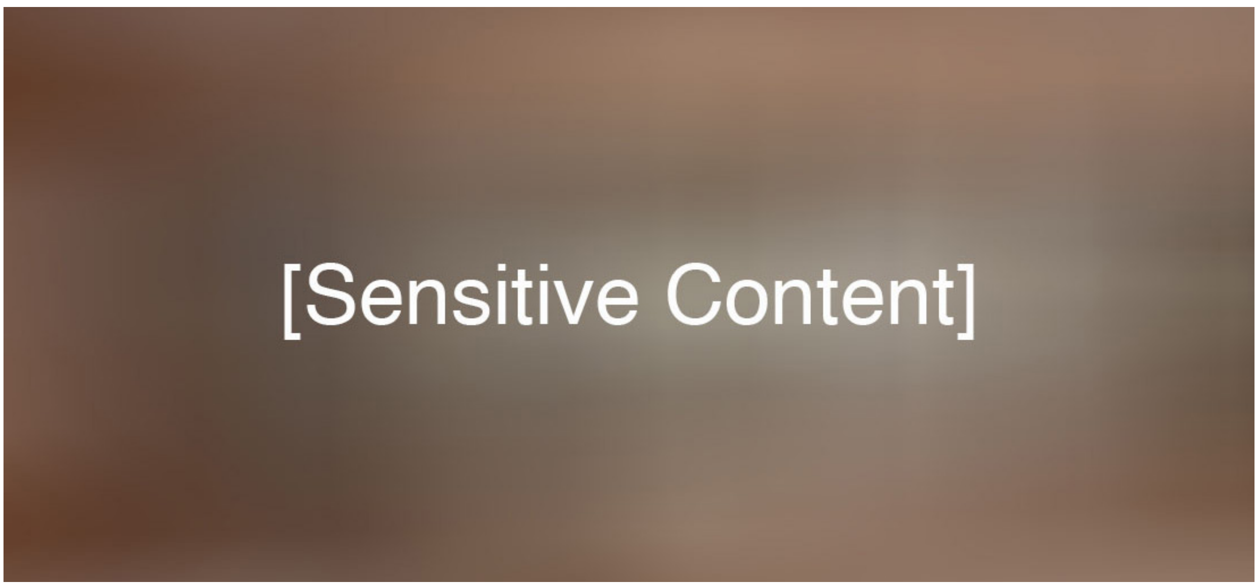
Figure 7.72. *DNA specimens retained for Burial 17 (left) and the bundled remains (right).*

Burial 19

Tulsa Race Massacre Investigation Burial Number: 19
Oaklawn Unknown Number: 04
Field Catalog Number: 120

Condition of Remains

These skeletal remains are friable and very fragmentary (Figure 7.73). They were recovered from a burial that was at the level of the current water table. Many elements, especially vertebrae, girdle elements, ribs, and manual/pedal elements, are represented by dust and bone fragments in the correct anatomical locations. Butvar was applied to the cranium, left leg and the forearms. The cranium and long bones fractured during exhumation. A gold tooth is observed with the cranium. Coffin remnants consisted of wood fragments and nails.



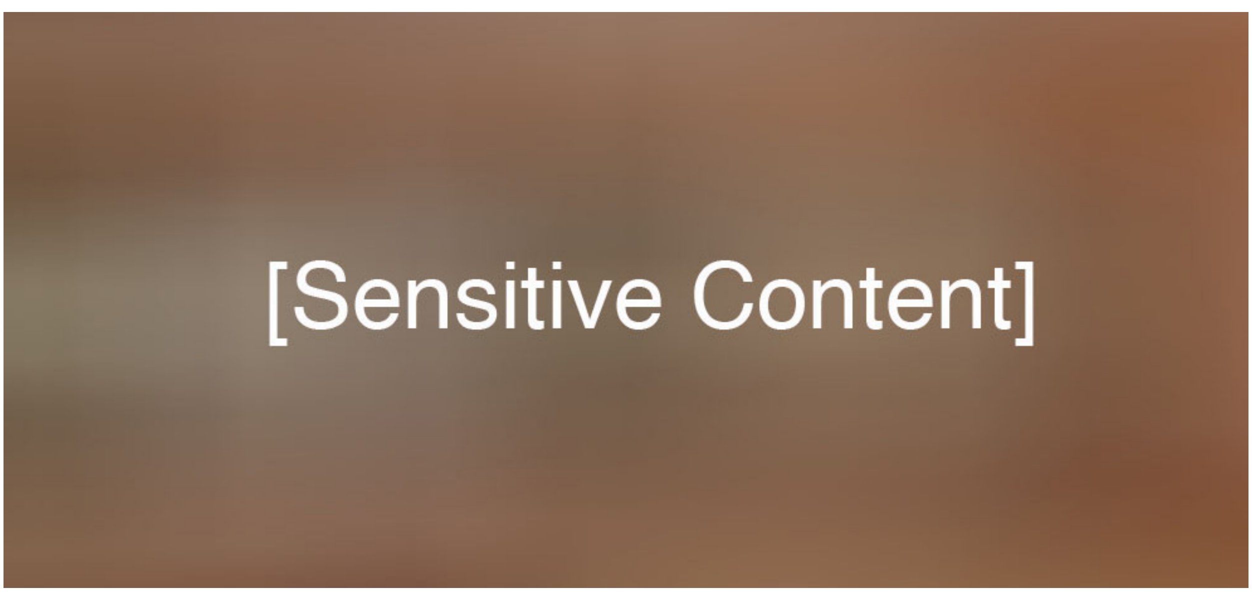


Figure 7.73. *Overview of the Burial 19 remains upon arrival in laboratory.*

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

After cleaning the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right and Left Radii
Hyoid (body and one cornu)	Right and Left Os Coxae
Teeth #1-8,10-14, 21-31	Right and Left Femora
Right and Left Ribs	Right and Left Patellae
Cervical, thoracic, lumbar and sacral vertebrae	Right and Left Tibiae
Right and Left Clavicles	Right and Left Fibulae
Right and Left Scapulae	Manual elements
Right and Left Humeri	Pedal elements
Right and Left Ulnae	

Sex

This individual is a robust male. Preserved traits (Buikstra and Ubelaker 1994) have predominately masculine morphology, including a narrow sciatic notch, wide mastoid processes, robust supraorbital margins, and a robust supraorbital ridge (Figure 7.74).

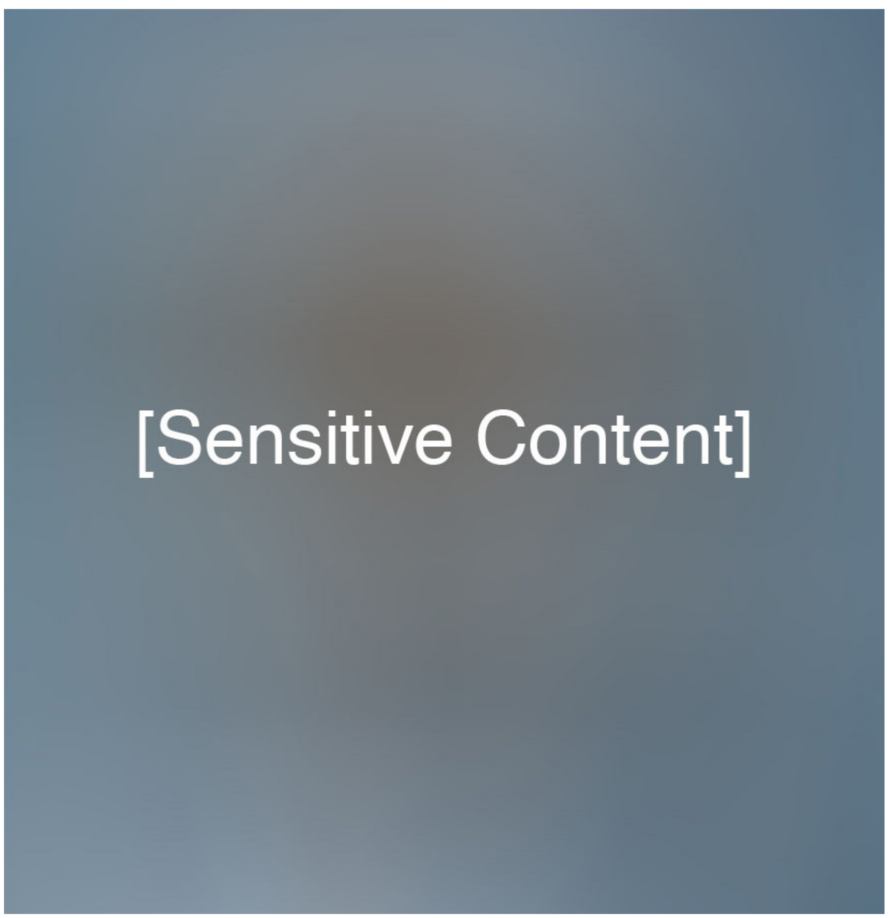


Figure 7.74. *Anterior view of the Burial 19 cranium.*

Ancestry

This individual is probably of African descent and may have identified as Black. Craniometric analysis of this individual in comparison to all the male populations in the Fordisc forensic database (Jantz and Ousley 2005, version 3.1.321) indicates this individual is dissimilar to all modern populations. Analysis using the database of White and Black males from the 19th and 20th centuries yielded closest similarity to 19th century Black males (posterior probability 0.911 and typicalities above 0.1).

Age

Age for this individual is estimated at middle-age, forties or older, based on a heavily worn dentition in conjunction with full fusion of skeletal epiphyses, including the joint between sacral vertebrae one and two.

Stature

Based on the classification of Black male, stature is estimated at 70.5 inches +/- 2.4 inches using the combined lengths of the calcaneus, femur and tibia and regression formula from Fordisc version 3.1.321. The formula use is:

Stature [70.5 inches] = 0.04854 * CALCXL+FEMXLN+TIBXLN (1012 mm) + 21.41

Individualizing Traits or Anomalies

This gentleman has a gold left upper canine (tooth #11), and the neighboring premolar (tooth #12) has an amalgam filling on the occlusal surface (Figure 7.75). Large muscle insertions on the ulnae (Figure 7.76) and femora indicate an active lifestyle at the time of death.

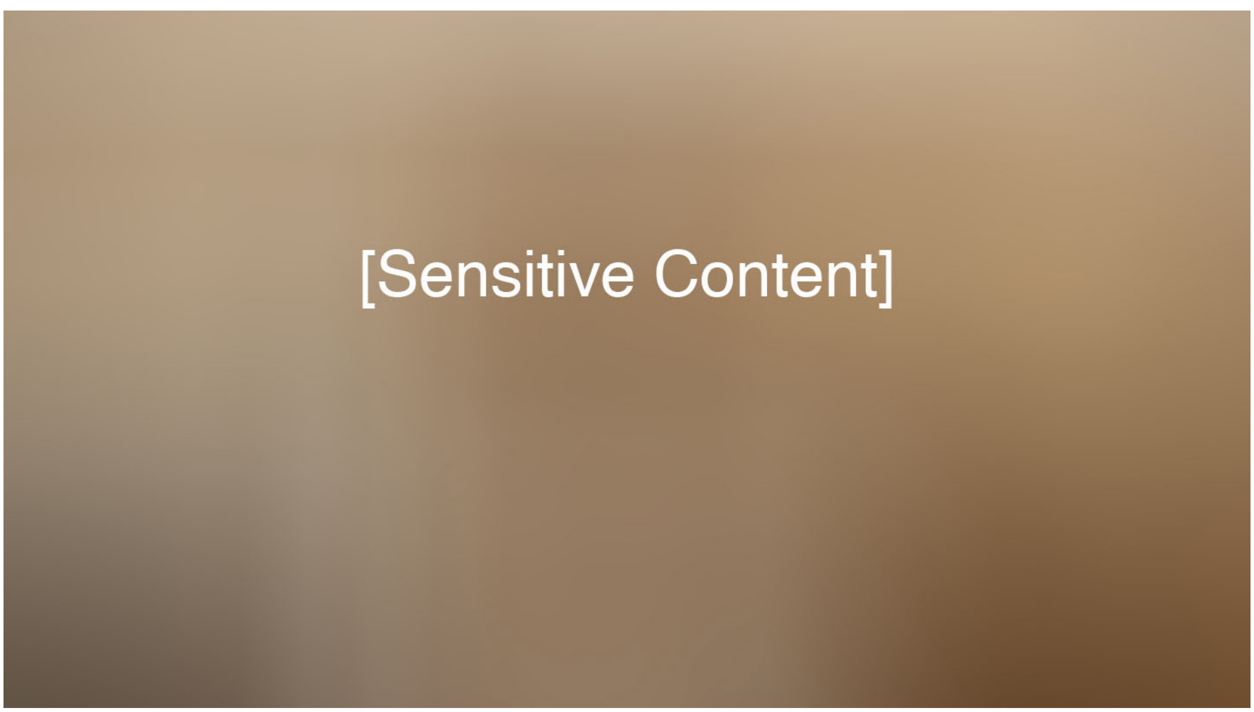


Figure 7.75. *Occlusal view of the maxillary dentition from Burial 19, showing gold and amalgam restorations to teeth #11 and #12, respectively.*

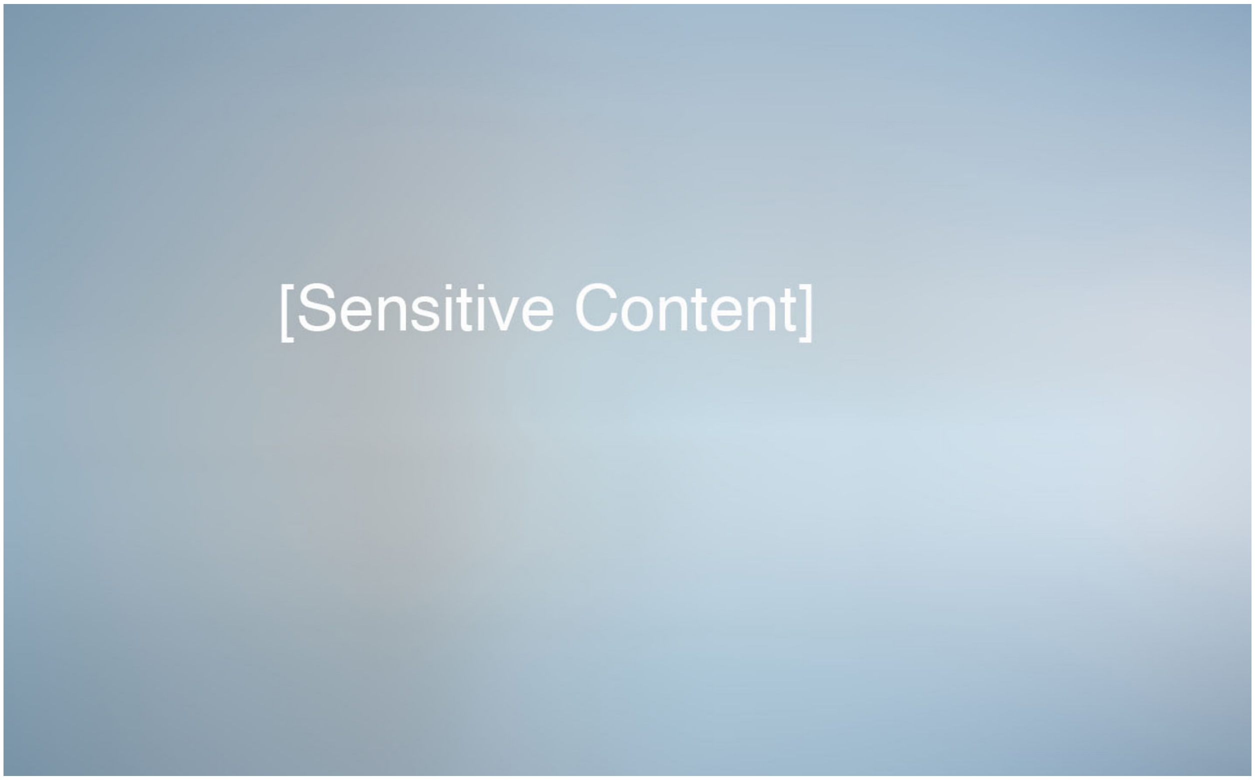


Figure 7.76. *Robust proximal ulnae from Burial 19, the left with the distal humerus in articulation.*

Antemortem or Pathological Conditions

This individual had active dental disease in association with healed projectile trauma to the left mandible (Figures 7.77-7.79). The alveolus of the lower left third molar has a reactive lesion that features two radiopaque objects within the lesion area. These objects measure approximately 4.7 by 2.8 mm and 5 by 1 mm. The adjacent ascending ramus has radiopaque inclusions. The lesion and radiopaque particles are consistent with a healed gunshot wound to the mandible. The loss of the adjacent teeth, the lower left fourth premolar and all three molars and the left upper second and third molars (see Figure 7.75), is consistent with area damage caused by projectile penetration to the adjacent mandible.

Perimortem Trauma

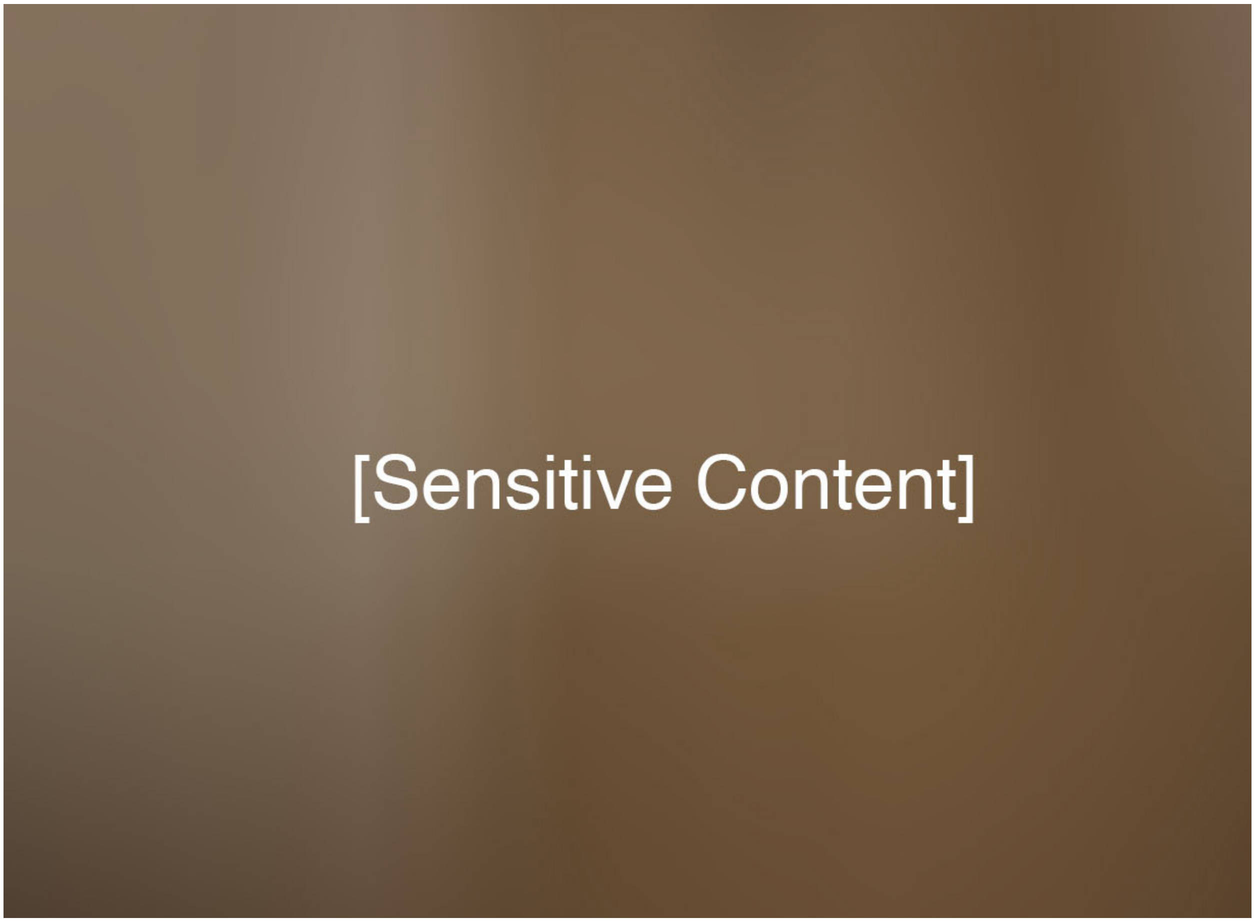
No signs of trauma associable with a cause of death are observed.

Postmortem Damage

Fragmentation and staining is generally consistent with prolonged burial and similar to others in this exhumation cohort, but in this case cortical bone is observed to slough as the elements dried in the laboratory.

DNA Sampling

Two petrous temporals and teeth #7, 21, and 23-26 are retained as samples for later DNA analysis (Figure 7.80).



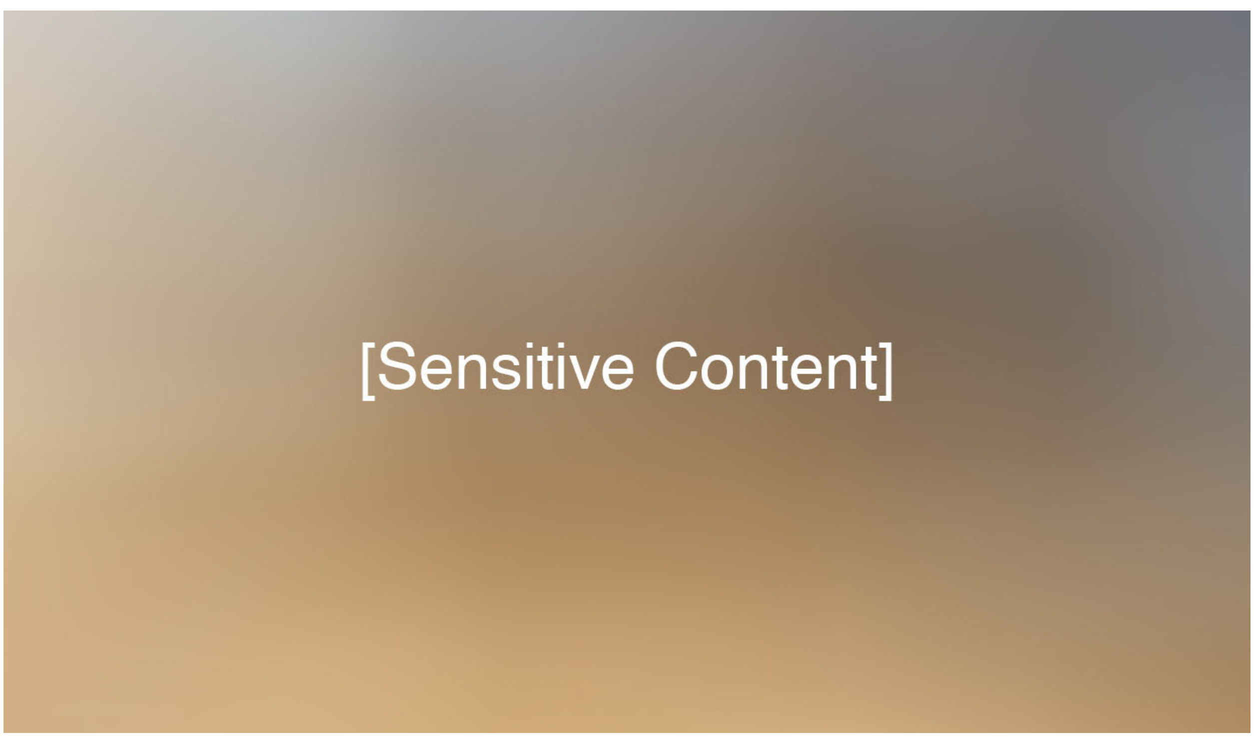


Figure 7.77. *Occlusal (top) and left lateral (bottom) views of the mandible from Burial 19.*

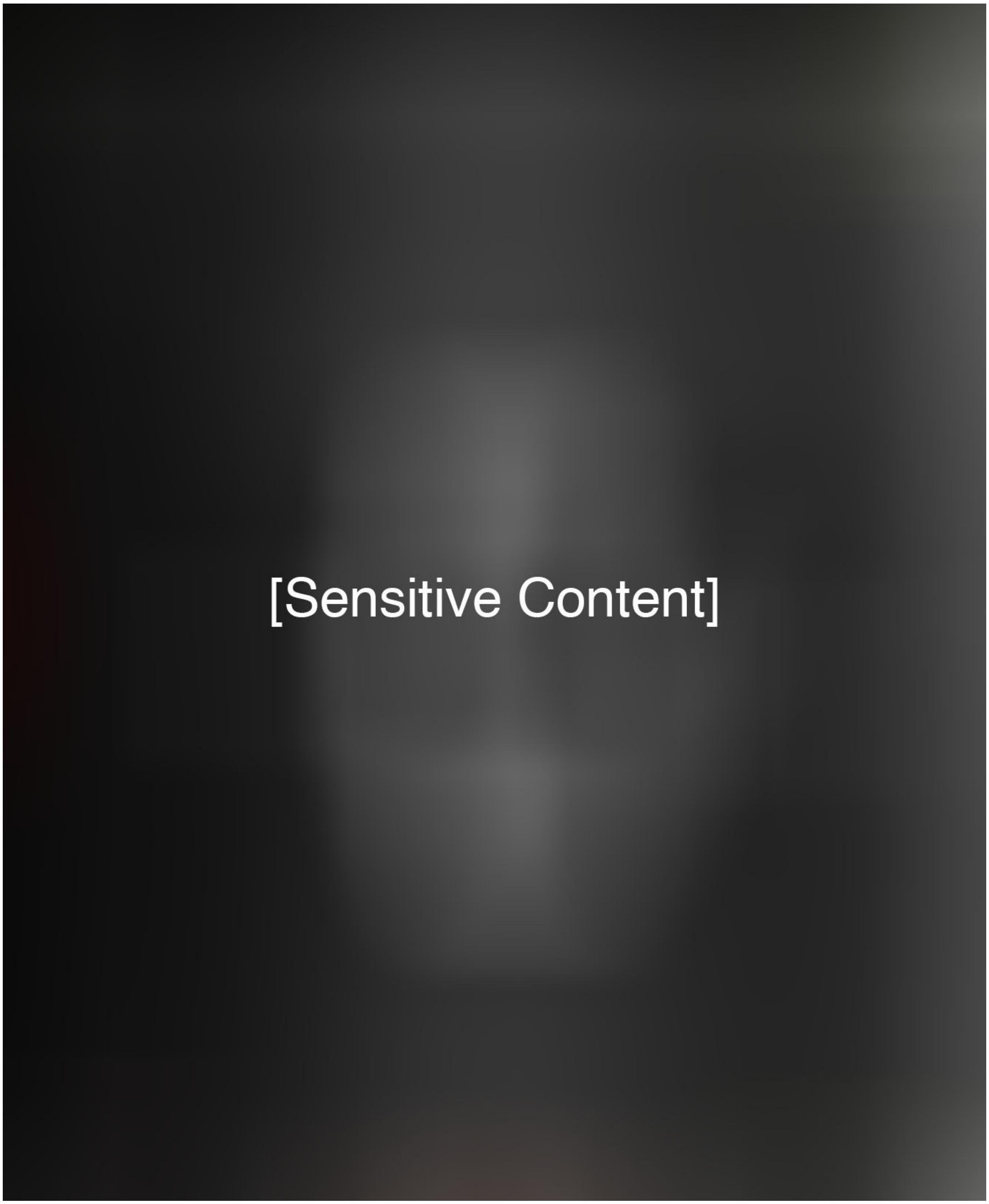


Figure 7.78. *Radiograph of the Burial 19 dentition. Radiopaque particles are present in the left body and ascending ramus of the mandible.*

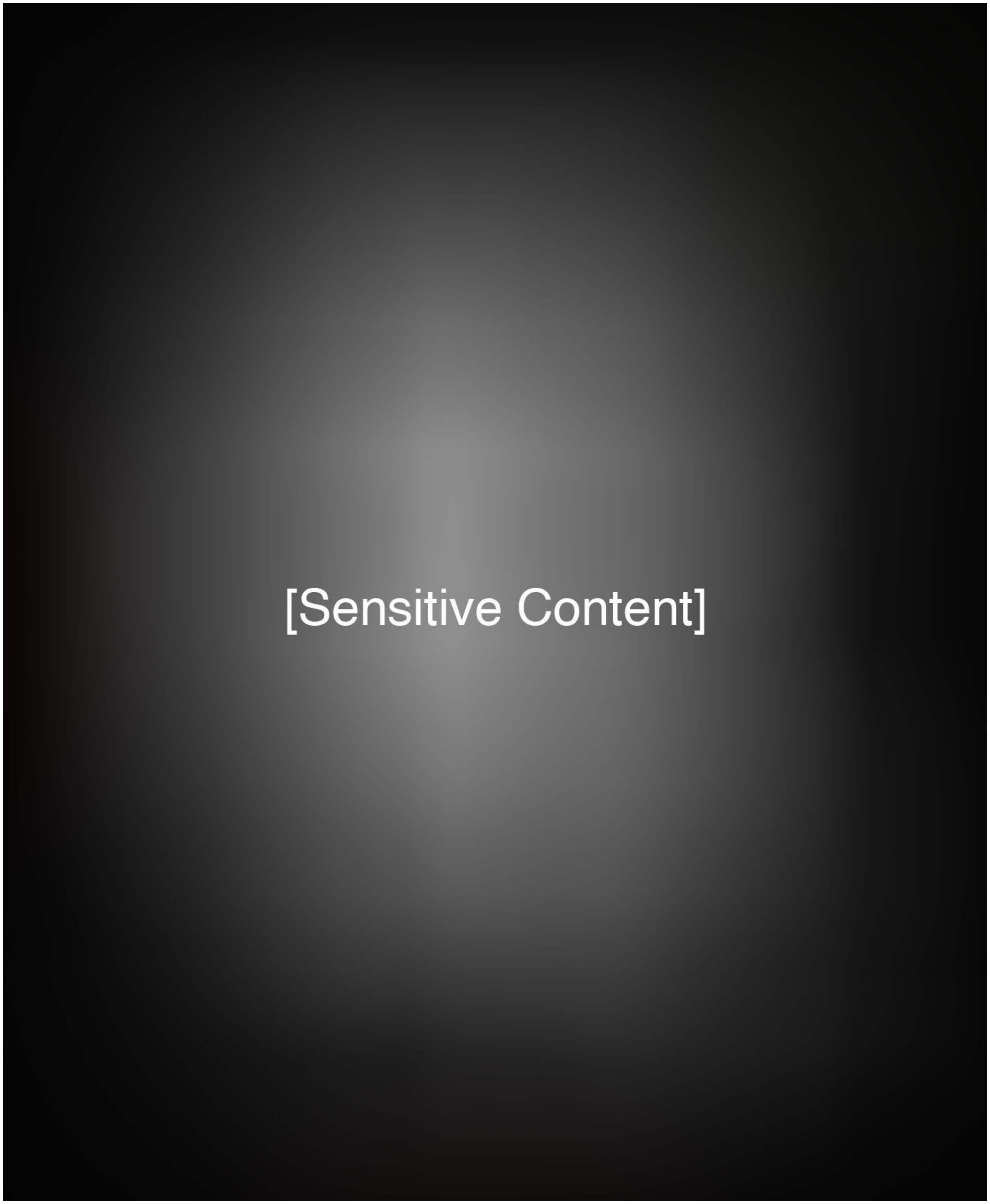


Figure 7.79. *Radiograph of the cranium from Burial 19.*

Figure 7.80. *DNA specimens retained for Burial 19 (left) and the bundled remains (right).*

Summary of Conclusions and Opinions

The individual exhumed from Burial 19 and accessioned as Oaklawn Unknown #04 is a robust probable Black male, who is middle aged. His stature is approximately 5 feet 5 inches. This gentleman has a gold crown on his left upper canine tooth, and a filling on his left upper first premolar. This dental care contrasts with the lesions in his upper and lower left molar areas. The teeth are lost due to a previous gunshot wound which left radiopaque particles in the left lower jaw. He also has active cavities in his right upper canine and first premolar. No trauma associable with a cause of death was observed in these remains; however, this evaluation is limited by poor preservation of many skeletal elements. Preservation of his remains is consistent with other individuals in this exhumation cohort, but these skeletal remains are very fragile and were observed to crumble while drying in the lab. Cranial and dental specimens are retained for DNA analysis.

Based on biological sex and coffin style, this individual possesses multiple but not all of the features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. This man is not excluded from investigation as a victim, as the challenging preservation of the burial environment has limited assessment of the remains. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the context of his burial.

Burial 21

Tulsa Race Massacre Investigation Burial Number: 21
Oaklawn Unknown Number: 08
Field Catalog Number: 196

Condition of Remains

These remains consist of infant skeletal elements (Figure 7.81). A mortuary plaque was recovered (Figure 7.82). Dentition, coffin nails, and small metallic objects tentatively identified as “snaps” (Figure 7.83) are recovered.

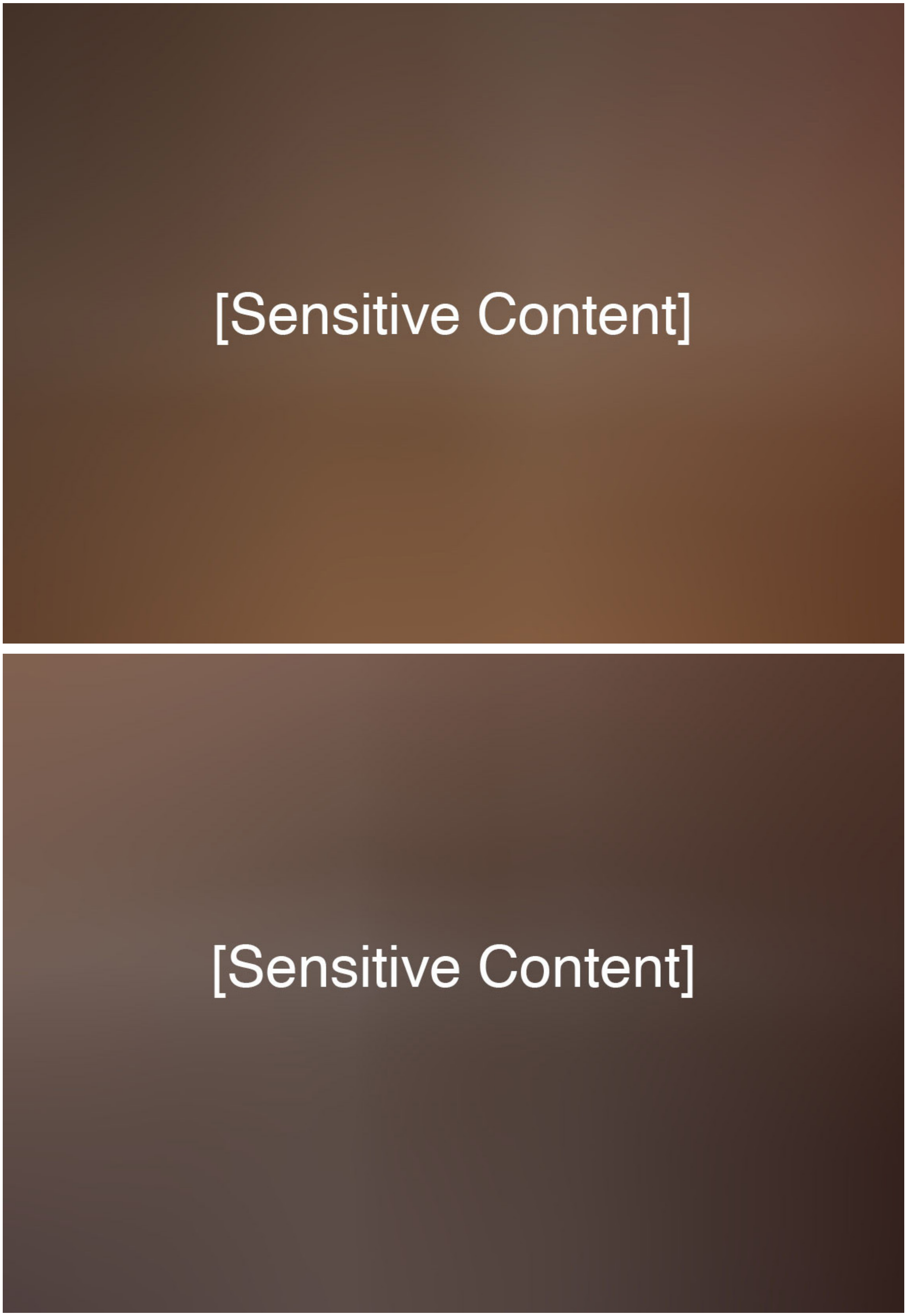


Figure 7.81. *Overview of the Burial 21 remains upon arrival in the laboratory.*

Figure 7.82. *The image and radiograph of plaque recovered from Burial 21.*

Figure 7.83. *Clothing snaps recovered from Burial 21.*

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

Age

This infant is prenatal. The dimensions of the pars petros indicate an age range of 30 to 36 weeks (Scheuer et al., 1980; Figure 7.84).

Perimortem Trauma

No signs of trauma associable with a cause of death are observed in these infant remains.

Postmortem Damage

Preservation is consistent with the staining and fragmentation of this burial cohort, with the added fragility posed by infant skeletal elements leading to identification of the largest skeletal elements.

DNA Sampling

No samples for DNA analysis are retained from these remains (Figure 7.85).

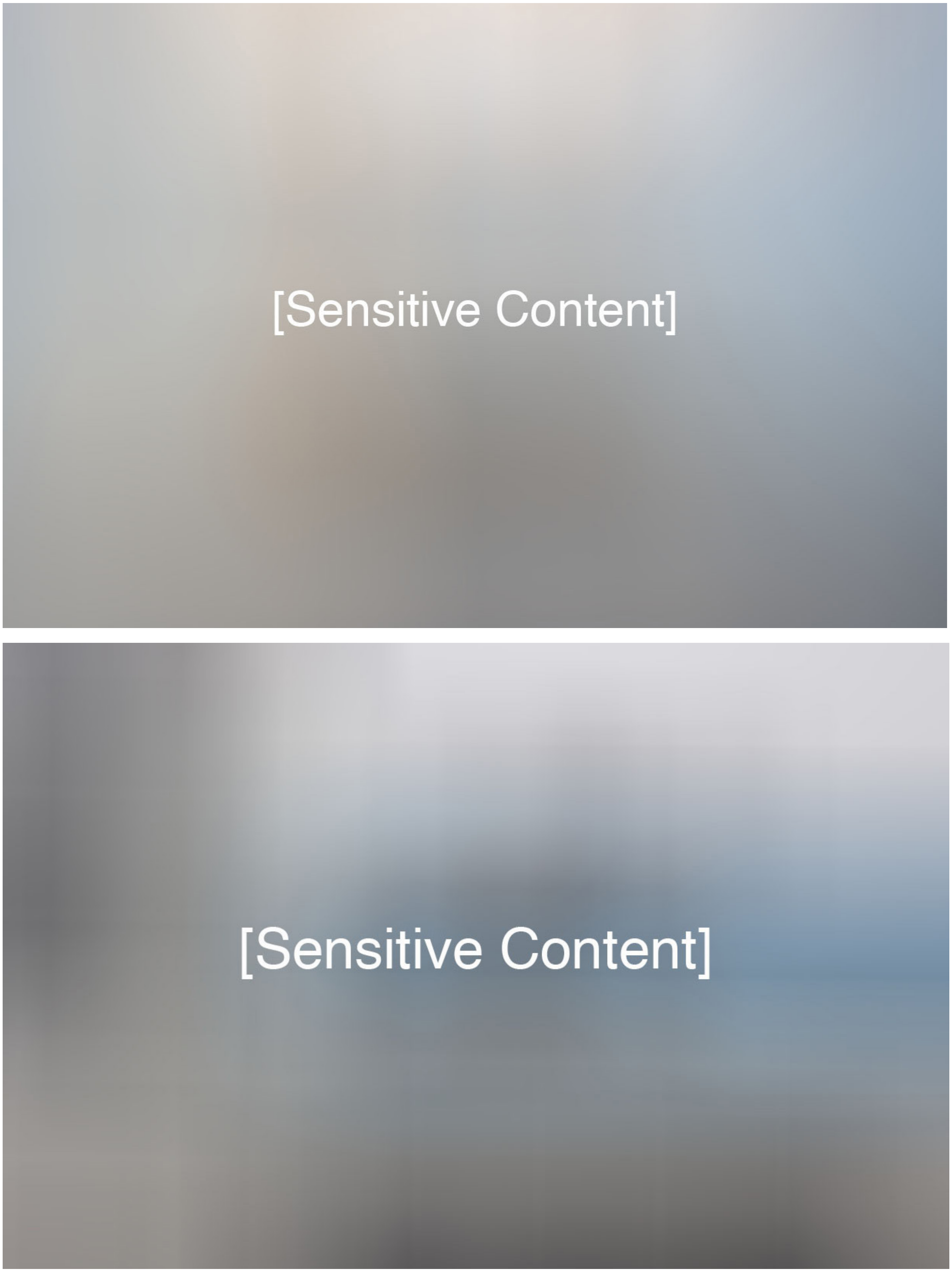


Figure 7.84. *Pars petros, and developing deciduous dentition from Burial 21.*

Figure 7.85. *The bundled remains from Burial 21.*

Summary of Conclusions and Opinions

The skeletal remains recovered from Burial 21 and accessioned as Oaklawn Unknown 08 represent a prenatal infant buried with clothing (as represented by the snaps) in a coffin that featured a mortuary plaque. As an infant in a formal coffin as indicated by the plaque, these remains are not representative of the mortuary sample under investigation for the Tulsa Race Massacre. No trauma associable with a cause of death is observed in these remains, although this evaluation is limited by poor preservation of many skeletal elements. DNA samples are not retained. Based on developmental age and coffin style, this individual does not possess significant features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery.

Burial 22

Tulsa Race Massacre Investigation Burial Number: 22
Oaklawn Unknown Number: 05
Field Catalog Number: 150

Condition of Remains

These remains consist of infant skeletal elements (Figure 7.86).

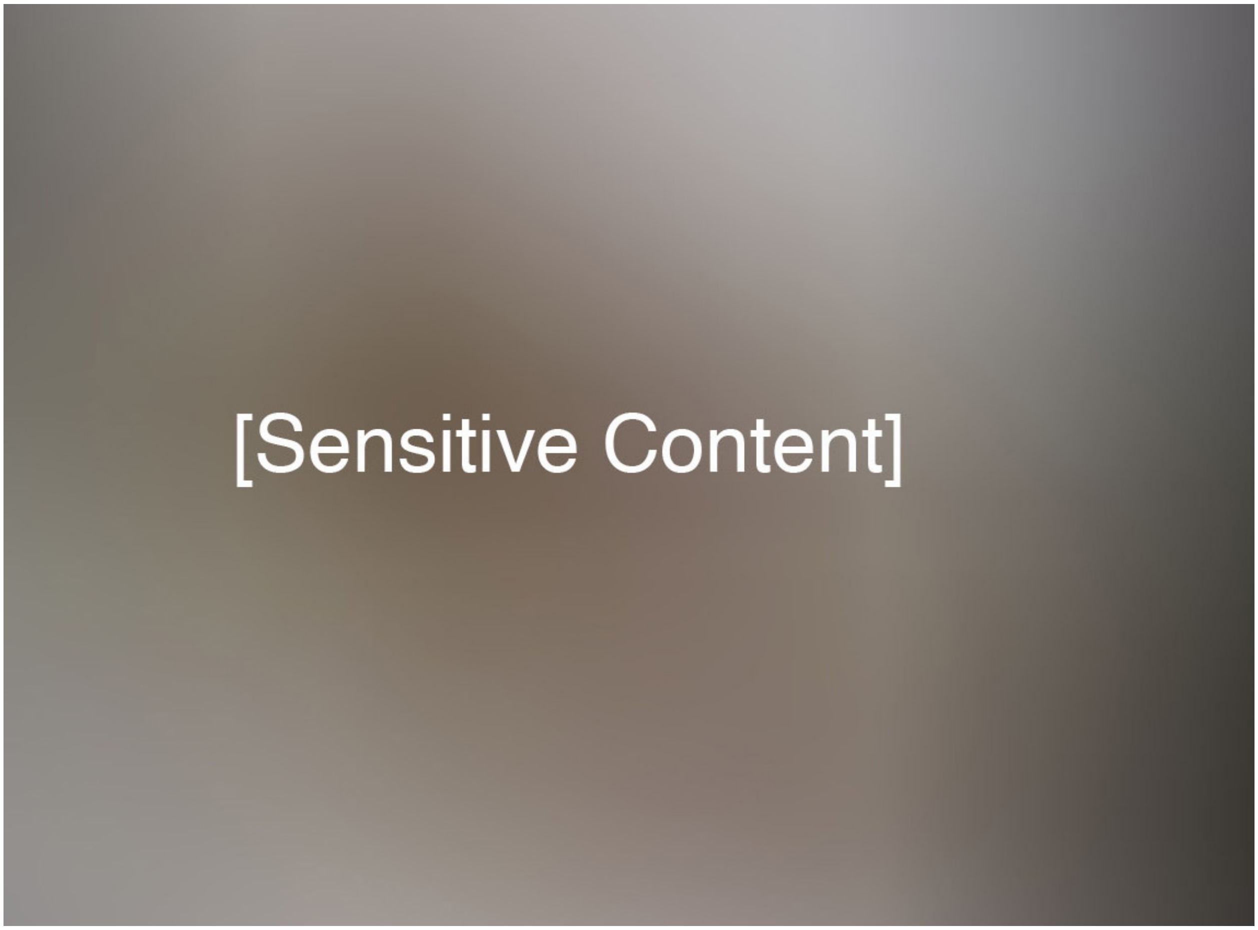


Figure 7.86. *Overview of the Burial 22 remains upon arrival in laboratory.*

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered. An exhaustive inventory was not completed due to the fragility of the skeletal elements.

Age

This infant is perinatal. The length of the right tibia indicates a predicted age range of 37.1 to 41.3 weeks (Scheuer et al., 1980).

Perimortem Trauma

No signs of trauma associable with a cause of death are observed in these infant remains.

Postmortem Damage

Preservation is consistent with the staining and fragmentation of this burial cohort, with added fragility posed by infant skeletal elements.

DNA Sampling

No samples for DNA analysis are retained from these remains (Figure 7.87).

Figure 7.87. *The bundled Burial 22 remains.*

Summary of Conclusions and Opinions

The skeletal remains recovered from Burial 22 and accessioned as Oaklawn Unknown 05 represent a near or at term infant buried in a simple coffin. No trauma associable with a cause of death is observed in these remains, although this evaluation is limited by poor preservation of many skeletal elements. DNA samples are not retained. There are no features of this burial that associate it with the stillborn recorded in the Tulsa Race Massacre history.

Burial 23

Tulsa Race Massacre Investigation Burial Number: 23
Oaklawn Unknown Number: None
Field Catalog Number: None

Condition Of Remains

No skeletal remains are recovered from this infant-sized burial. Coffin wood is observed.

Summary of Conclusions and Opinions

No skeletal remains are recovered from this infant-sized burial.

Burial 24

Tulsa Race Massacre Investigation Burial Number: 24
Oaklawn Unknown Number: 06
Field Catalog: 149

Condition of Remains

These remains consist of infant skeletal (Figure 7.88). Coffin wood and several nails are observed within the burial.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered. An exhaustive inventory was not completed due to the fragility of the skeletal elements.

Age

This infant is prenatal. The dimensions of the right and left pars petros are consistent with a prenatal age of approximately 34 weeks (Scheuer et al., 1980; Figure 7.89).

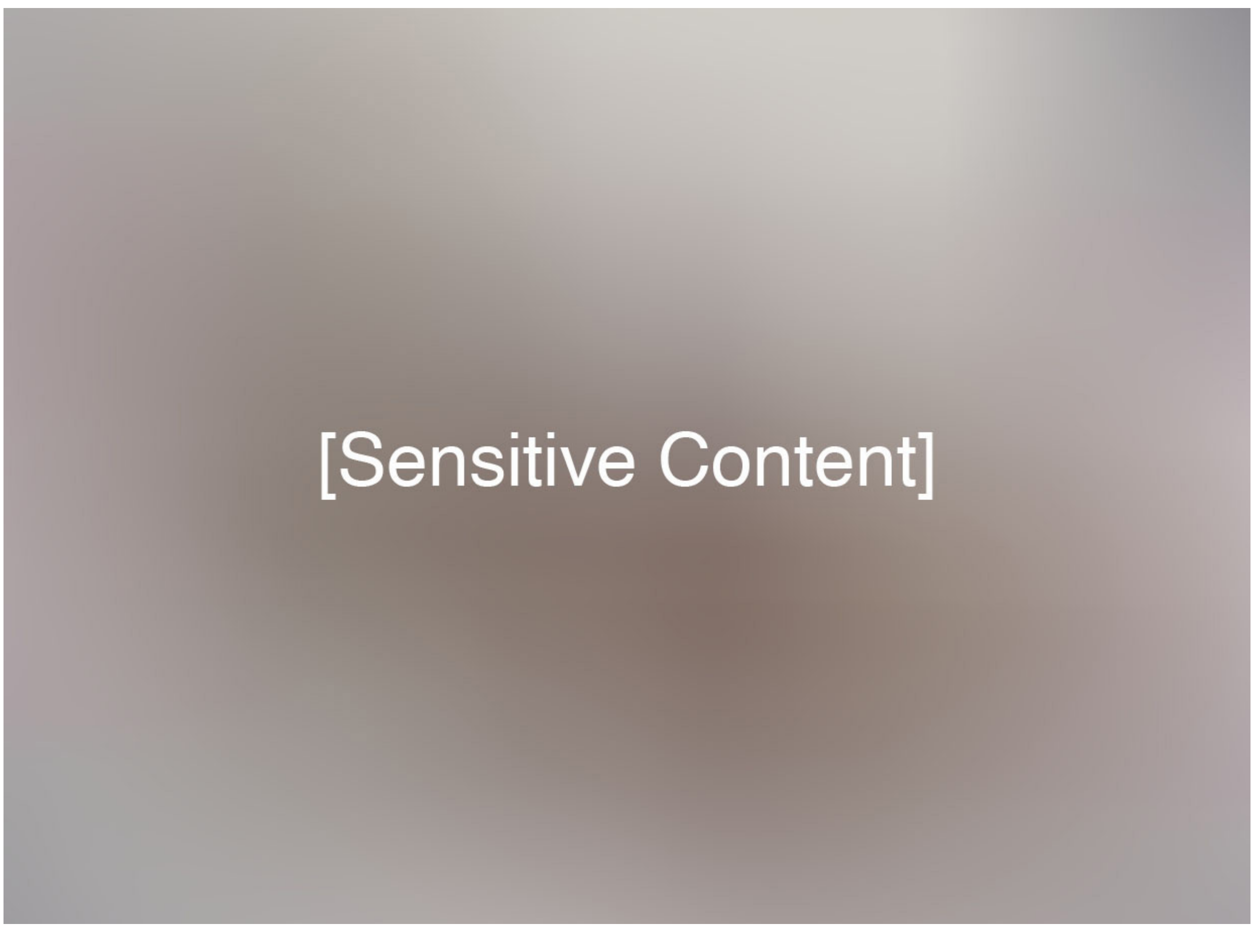


Figure 7.88. *Overview of the Burial 24 remains upon arrival in laboratory.*

Perimortem Trauma

No signs of trauma associable with a cause of death are observed in these infant remains.

Postmortem Damage

Preservation is consistent with the staining and fragmentation of this burial cohort, with added fragility posed by infant skeletal elements.

DNA Sampling

No samples for DNA analysis are retained from these remains (Figure 7.90).

Summary of Conclusions and Opinions

The skeletal remains recovered from Burial 24 and accessioned as Oaklawn Unknown 06 represent a prenatal infant buried in a simple coffin. No trauma associable with a cause of death is observed in these remains, although this evaluation is limited by poor preservation of many skeletal elements. DNA samples are not retained. There are no features to these specific skeletal remains or burial to associate it with the stillborn recorded in the Tulsa Race Massacre history.

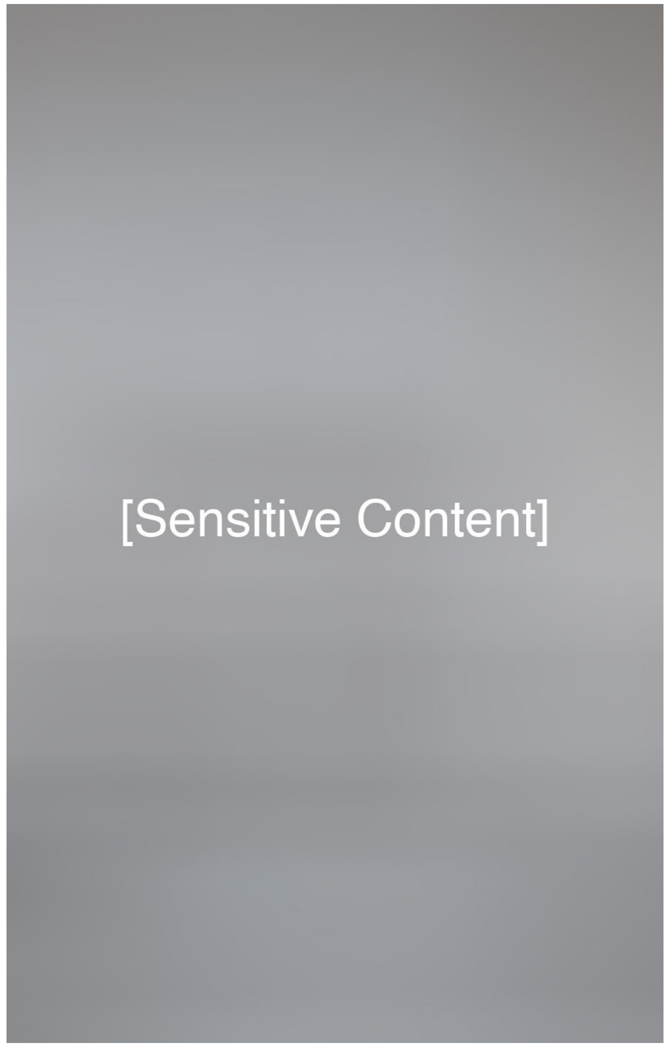


Figure 7.89. *Par petros from Burial 24.*

Figure 7.90. *The bundled Burial 24 remains.*

Burial 26

Tulsa Race Massacre Investigation Burial Number: 26
Oaklawn Unknown Number: 09
Field Catalog Number: 208

Condition of Remains

These remains consist of poorly preserved infant skeletal elements (Figure 7.91). Coffin wood and several nails were observed within the burial. Depth of this burial was noted as 61 cm, which made it atypically deep for other burials in this row, but similar to the neighboring Burial 27.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered. An exhaustive inventory was not completed due to the fragility of the skeletal elements.

Age

This infant is prenatal. The dimensions of the right pars petros are consistent with a prenatal age of 32-34 weeks (Scheuer et al., 1980; Figure 7.92).

Perimortem Trauma

No signs of trauma associable with a cause of death are observed in these infant remains.

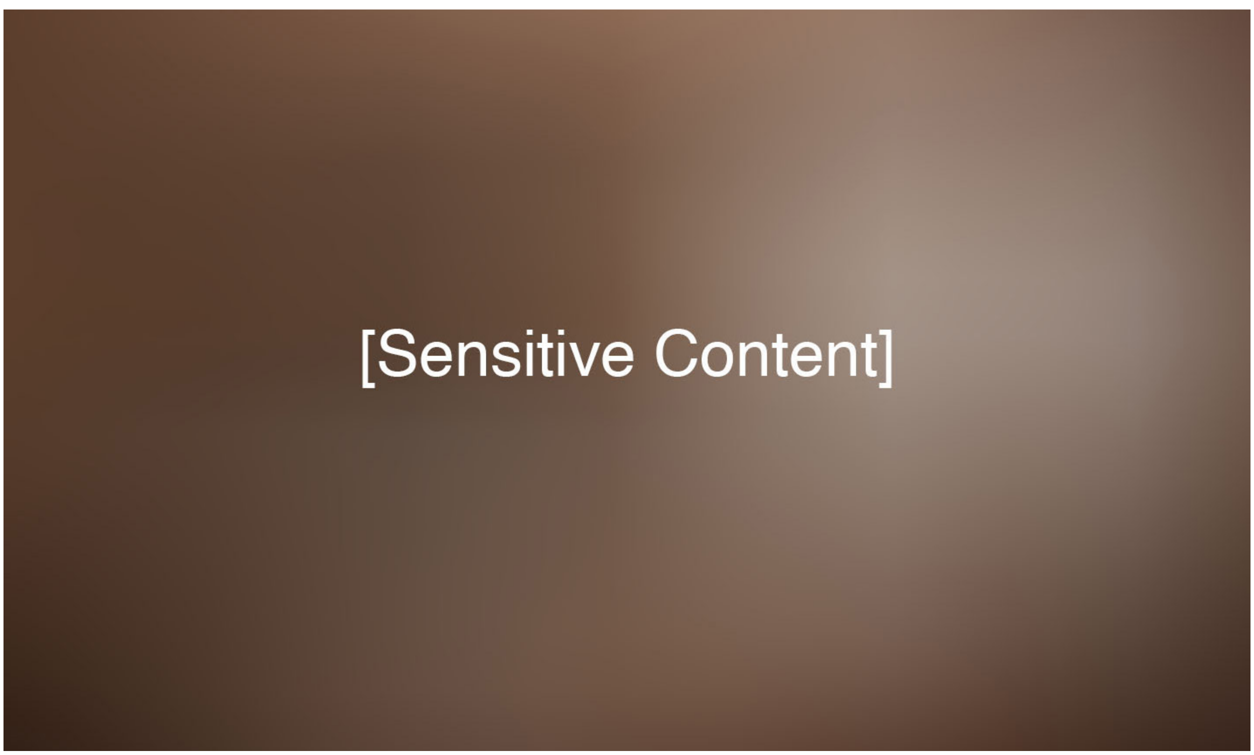


Figure 7.91. *Overview of the Burial 26 remains upon arrival in laboratory.*

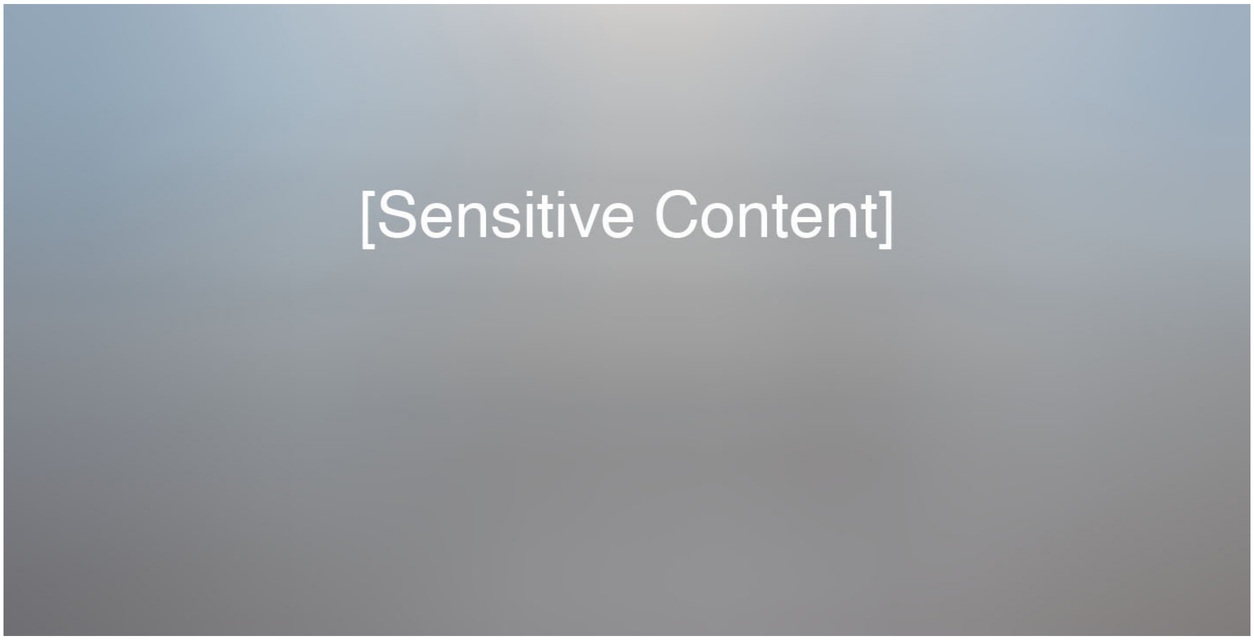


Figure 7.92. *Pars petros from Burial 26.*

Postmortem Damage

Preservation is consistent with the staining and fragmentation of this burial cohort, with added fragility posed by infant skeletal elements.

DNA Sampling

No samples for DNA analysis are retained from these remains (Figure 7.93).

Figure 7.93. *The bundled Burial 26 remains.*

Summary of Conclusions and Opinions

The skeletal remains recovered from Burial 26 and accessioned as Oaklawn Unknown 09 represent a prenatal infant of approximately 32-36 weeks, buried in a simple coffin. No trauma associable with a cause of death is observed in these remains, although this evaluation is limited by poor preservation of many skeletal elements. DNA samples are not retained. This burial was at an atypical depth similar to the neighboring adult Burial 27, which may associate the two burials.

Burial 27

Tulsa Race Massacre Investigation Burial Number: 27
Oaklawn Unknown Number: 18
Field Catalog Number: 356

Condition of Remains

These remains are friable and fragmentary, and stained to soil color (Figure 7.94). Butvar was applied to the cranium and lower limb elements. Plant roots have invaded the cranium. The remains were exhumed in large blocks of soil, as an intact bullet is recovered near the left scapula. This bullet and the left scapula were retrieved separately to preserve them for transport. Residues of corroded metal are present in the fill soil over the skull and pelvis. Broken glass is recovered from the soil in the pelvic area. Two safety pins are recovered, one beneath the occipital and the other at the pelvic girdle (Figure 7.95). A residue of fabric is also observed in the pelvic area, possibly a belt (Figure 7.96). The coffin is represented by wood fragments and nails.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

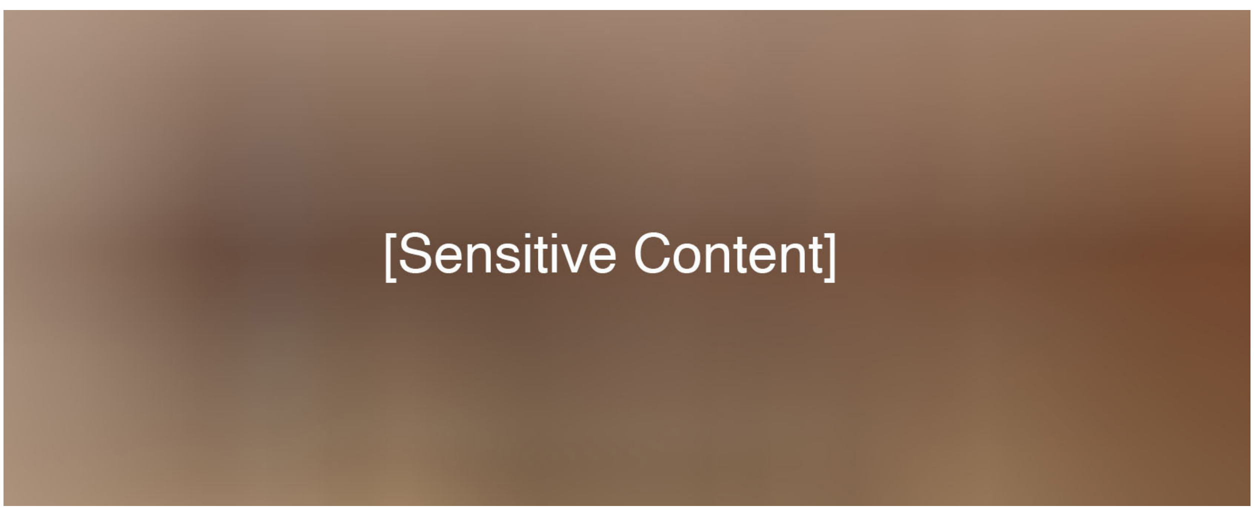


Figure 7.94. *Overview of the Burial 27 remains upon arrival in laboratory.*

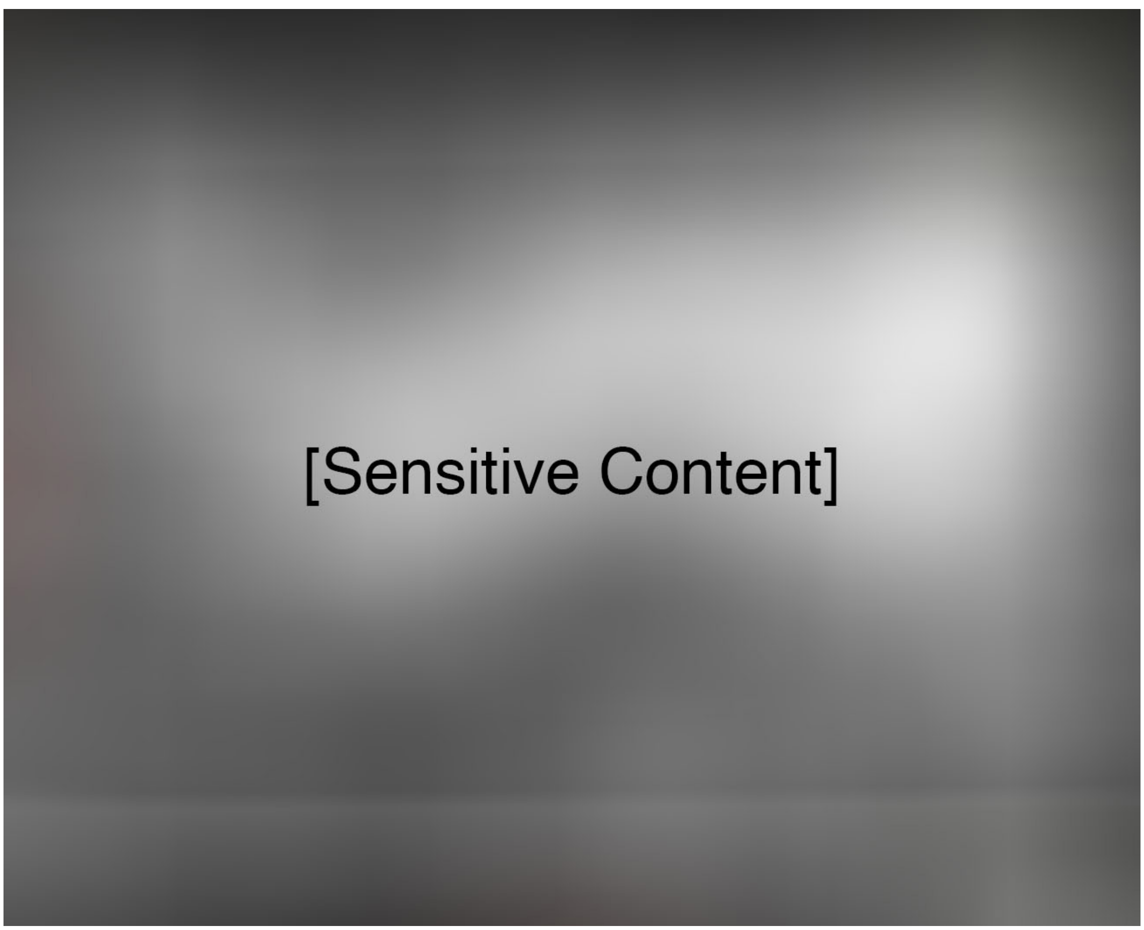


Figure 7.95. *Safety pin near skull (top) and pelvic area, observed in Burial 27.*

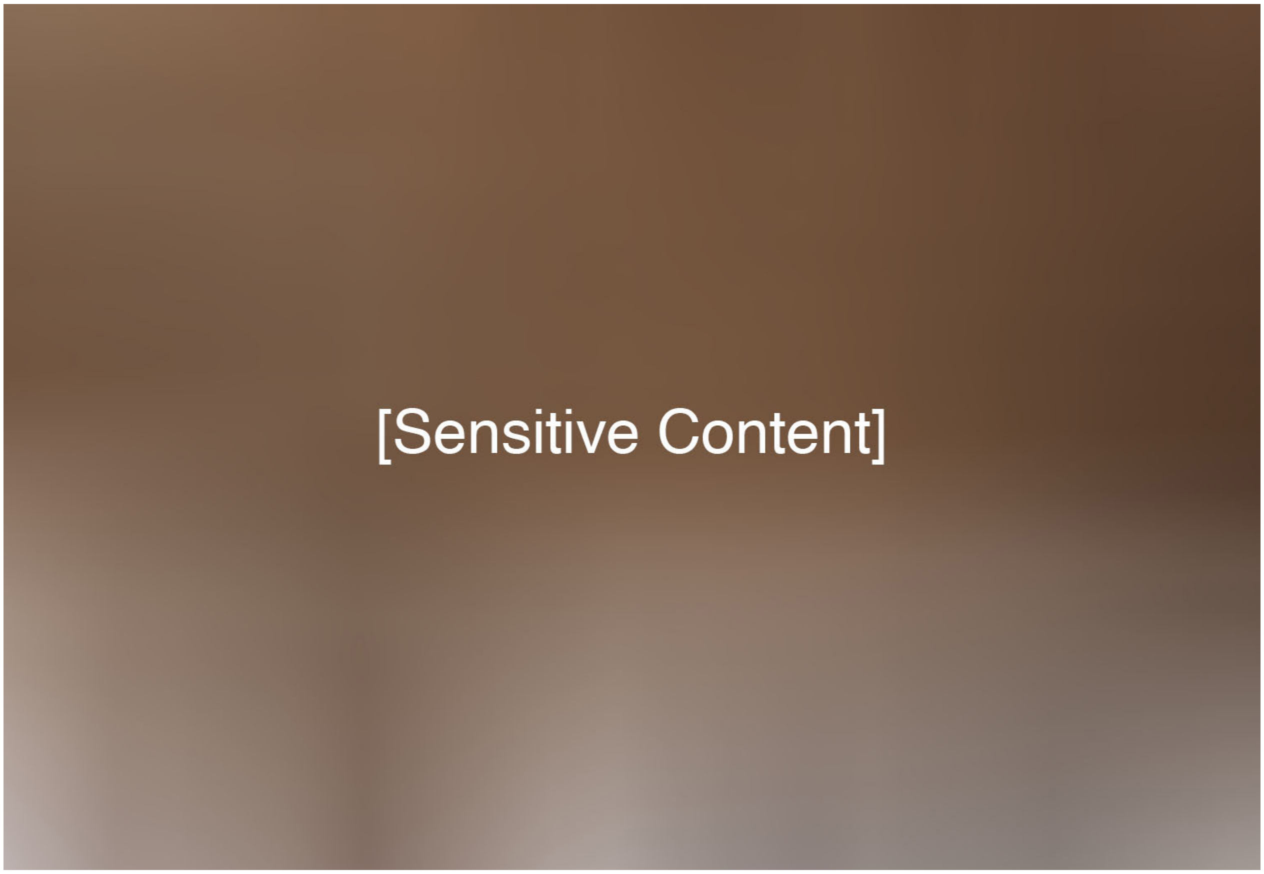


Figure 7.96. *Fabric specimen found in soil from pelvic area of Burial 27.*

After cleaning the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right and Left Radii
Sternum (gladiolus)	Right and Left Os Coxae
Teeth #1-32	Right and Left Femora
Right and Left Ribs	Right and Left Patellae
Cervical, thoracic, lumbar and sacral vertebrae	Right and Left Tibiae
Right and Left Clavicles	Right and Left Fibulae
Right and Left Scapulae	Manual elements
Right and Left Humeri	Pedal elements
Right and Left Ulnae	

Sex

This individual is probably male. Of the preserved pelvic traits, the sciatic notches are narrow and there are no preauricular sulci. Analysis of the postcranial measurements against a modern sample of American Blacks and Whites (Fordisc version 3.1.321) produced closest proximity to the male populations. Sex estimation from long bones is size dependent and effected by activity, so a robust woman is not excluded for the sex of this individual.

Ancestry

Ancestry could not be reliably estimated for this individual. Cranial dimensions and sufficient facial features are unavailable for analysis due to the degree of cranial fragmentation and deformation. Speculatively, this person probably identified as Black based on the burial location, and the scant non-metric traits observed in the cranium. These traits are the smooth inferior margin of the nasal aperture, and the presence of a nasal gutter. These traits can only be applied circumstantially to this context the burial location.

Age

This individual is a younger adult. The right medial clavicle is nearing completion of fusion, placing him in the mid to late twenties.

Stature

Based on the classification of Black male, stature is estimated at 67.0 inches +/- 2.5 inches, using the combined lengths of the femur, humerus, and ulna and regression formula from Fordisc version 3.1.321, for the 19th Century Black Male population at a 95% confidence interval. The formula used is

Stature [67.0 inches} = 0.04674 * FEMXLN+HUMXLN+ULNPHL (1049 mm) + 17.94

Individualizing Traits or Anomalies

No individualizing traits are observed in these skeletal remains.

Antemortem or Pathological Conditions

Linear enamel hypoplasia is noted on teeth #6, 7, 22, and 25-32. This condition is associated with periods of high fever as a subadult. Caries are noted on the occlusal surface of tooth #12, and the buccal surfaces of teeth #19 and #31 (Figure 7.97).

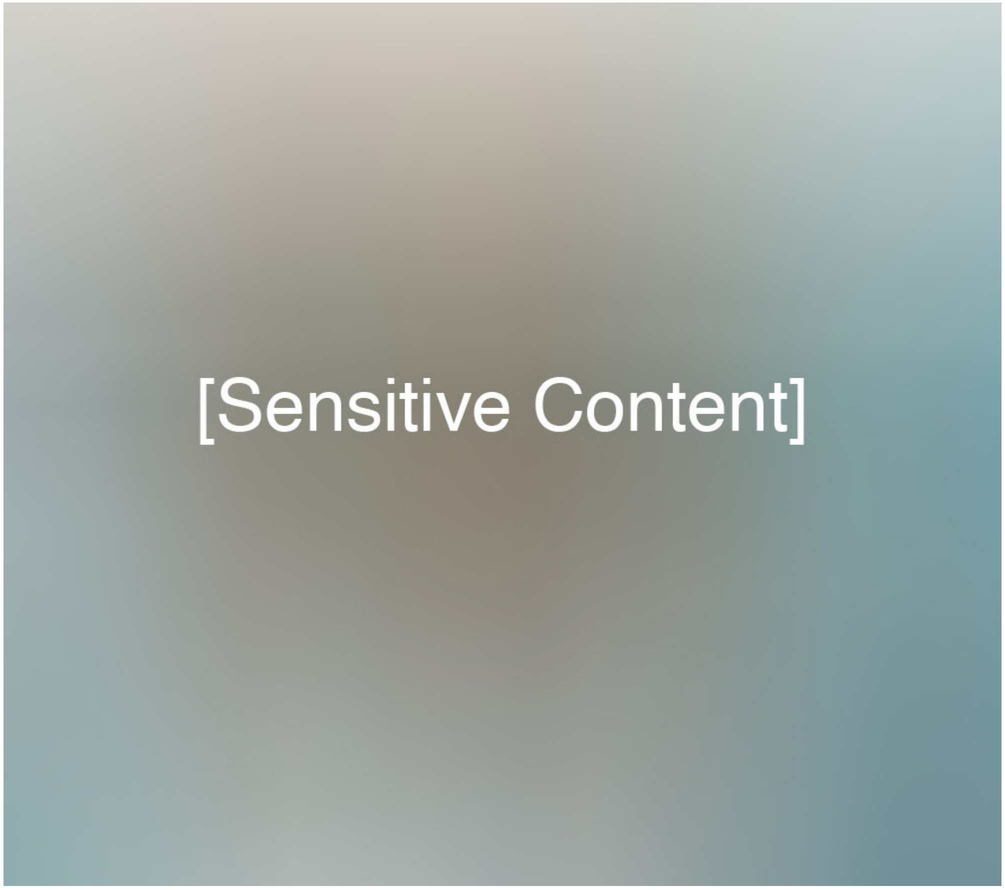
Perimortem Trauma

Evidence of three (3) gunshot wounds is observed, two to the left shoulder area and one (1) to the cranium.

One wound is demonstrated by a bullet recovered in the vicinity of the left shoulder (Figure 7.98), and possibly by the radiopaque scatter observed in the cervical and thoracic vertebral remains (Figure 7.99).

A second wound occurs in the left scapula where a semi-circular defect near the axillary border, with a bevel to the posterior surface, indicates a projectile track with an anterior-posterior trajectory (Figures 7.100-7.103). No projectile is recovered, as no bullet is recovered from beneath the skeletal remains, which would be expected if the bullet had remained in the muscle tissue.

The third gunshot wound occurs in the cranium. Radiopaque fragments and an object are observed within the cranium (Figure 7.104). The object resolved as bullet #2 (Figures 7.105). Trajectory of this projectile is not preserved, but entry was likely through the nasomaxillary region, as radiopaque fragments are observed in the vicinity of the sphenoid sinus. There is no exit defect; the bullet is recovered from the left cerebellar fossa.



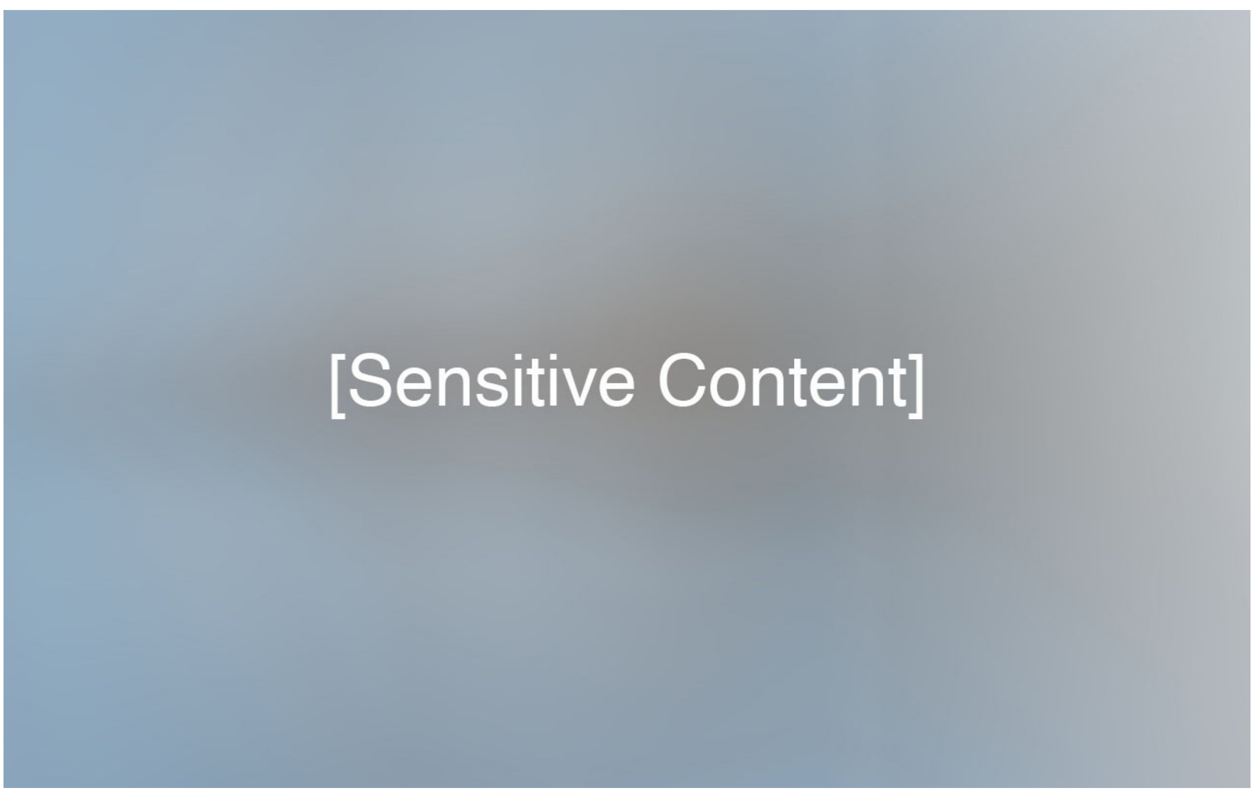


Figure 7.97. *Dentition recovered from Burial 27.*

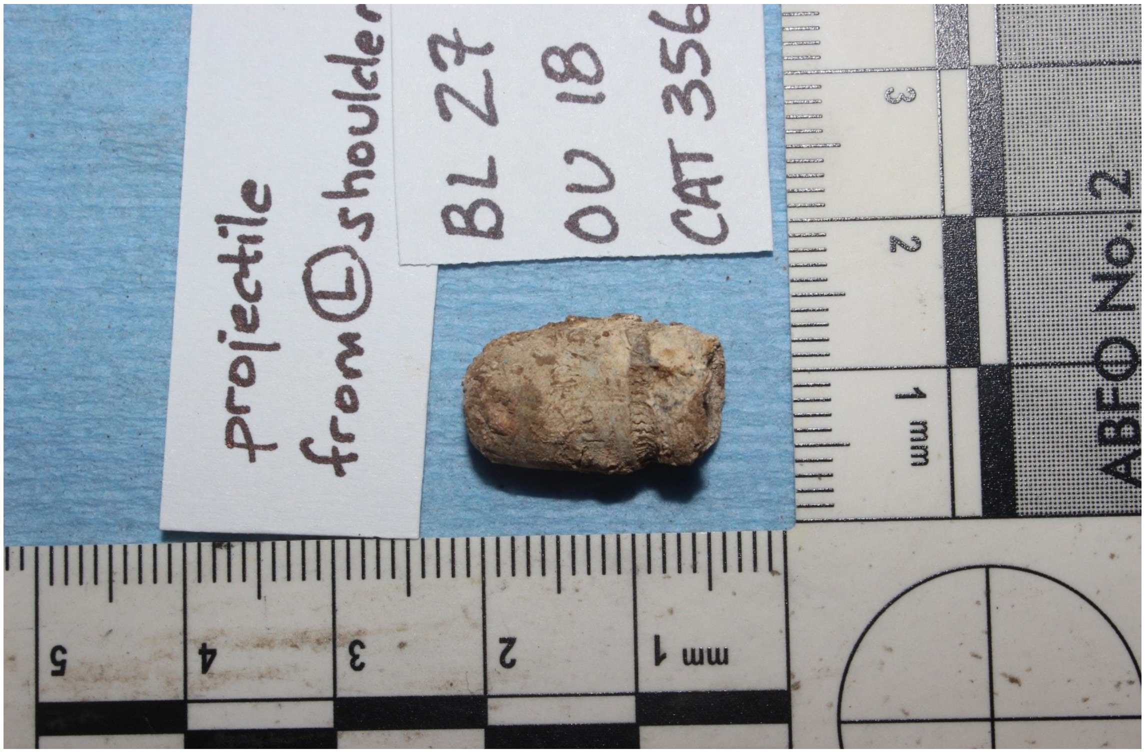


Figure 7.98. *Bullet recovered from left shoulder area of Burial 27.*

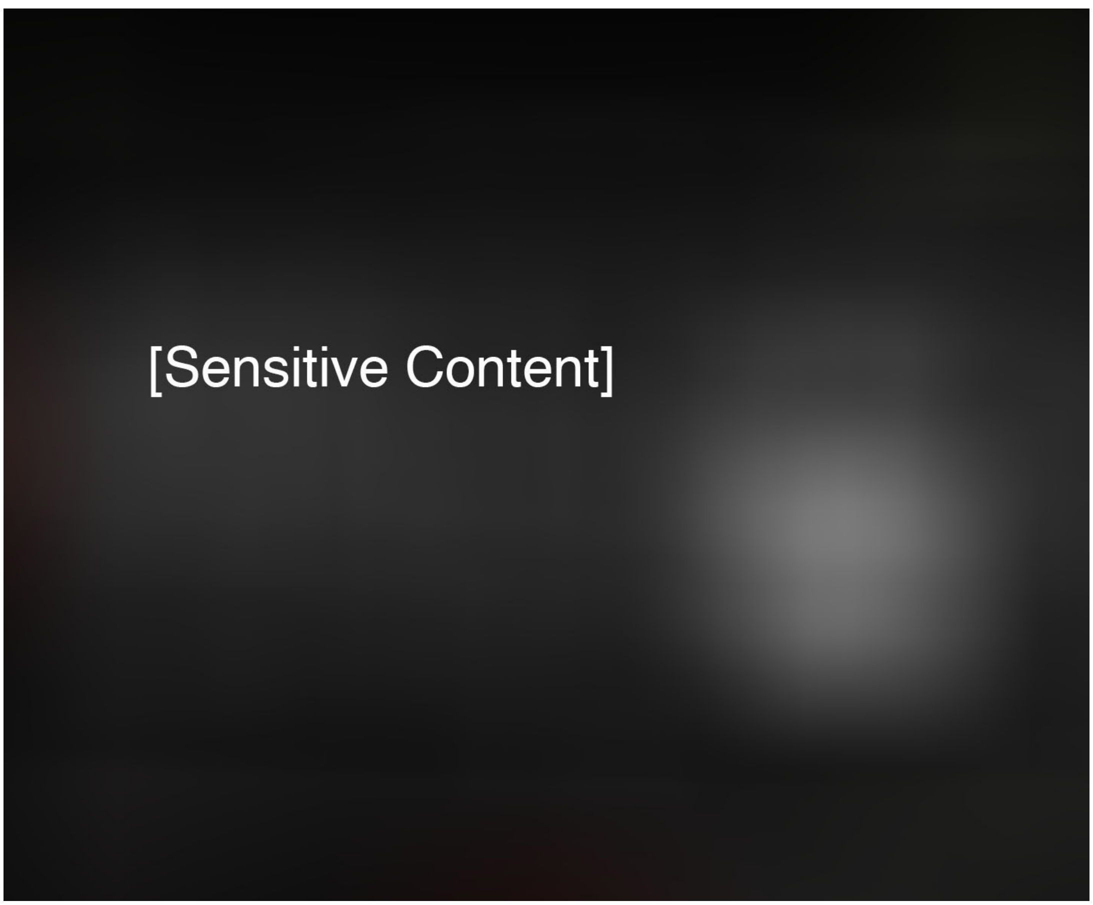


Figure 7.99. *Upper thorax intake radiograph from Burial 27, showing radiopaque scatter.*

Figure 7.100. *Anterior (top) and dorsal views of the right and left scapulae from Burial 27. Projectile defect in left scapula indicated by arrows.*

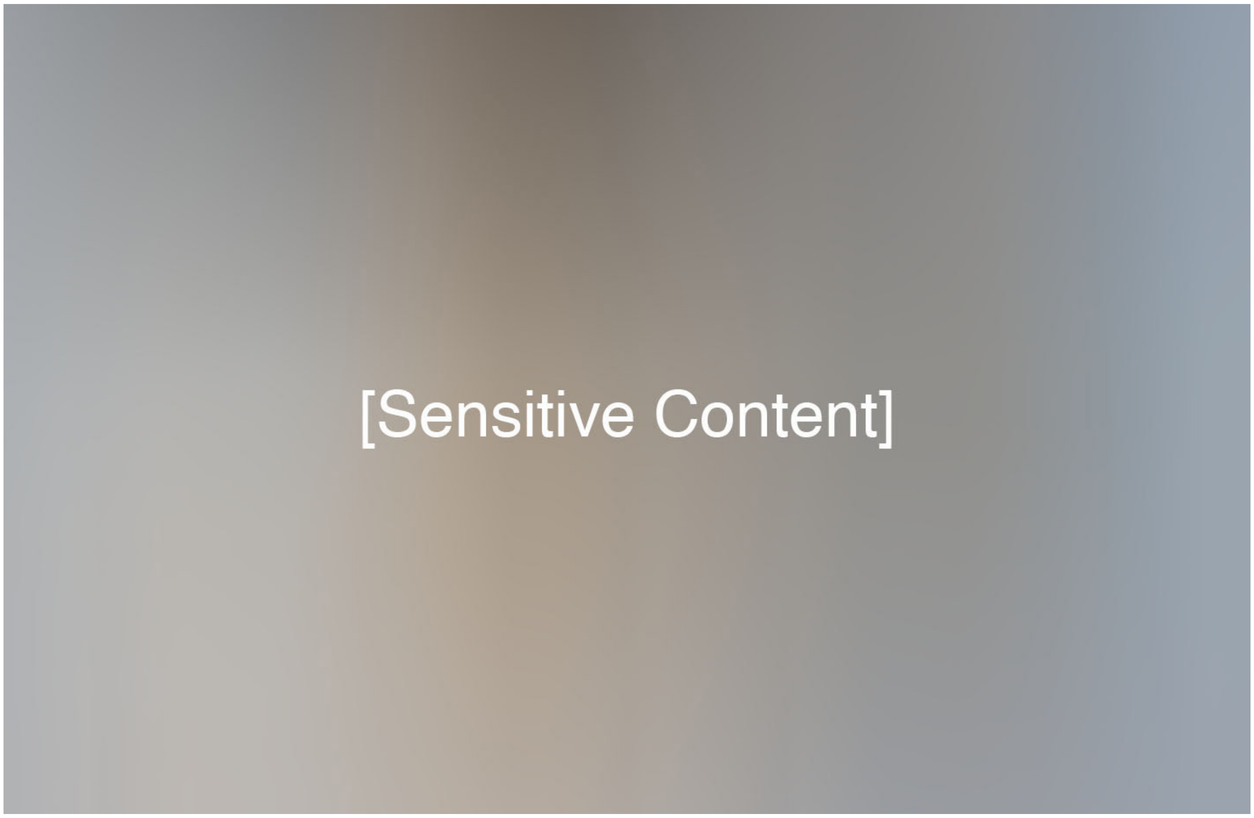
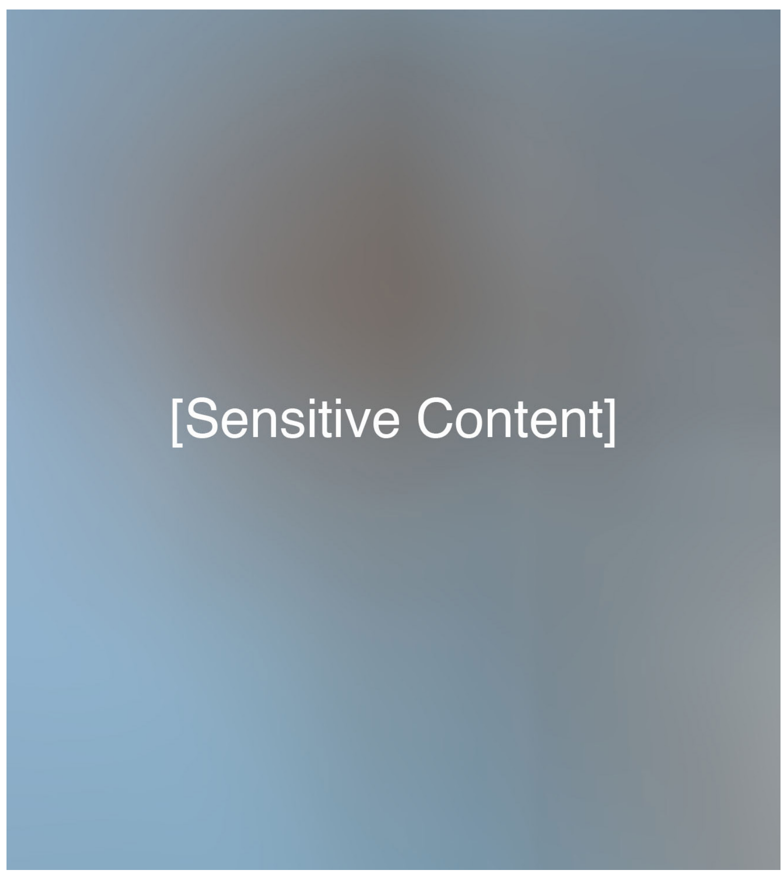


Figure 7.101. *Anterior view of semicircular defect on left scapula from Burial 27.*



>Figure 7.102. *Dorsal view of left scapula from Burial 27, showing bevel on semicircular defect.*

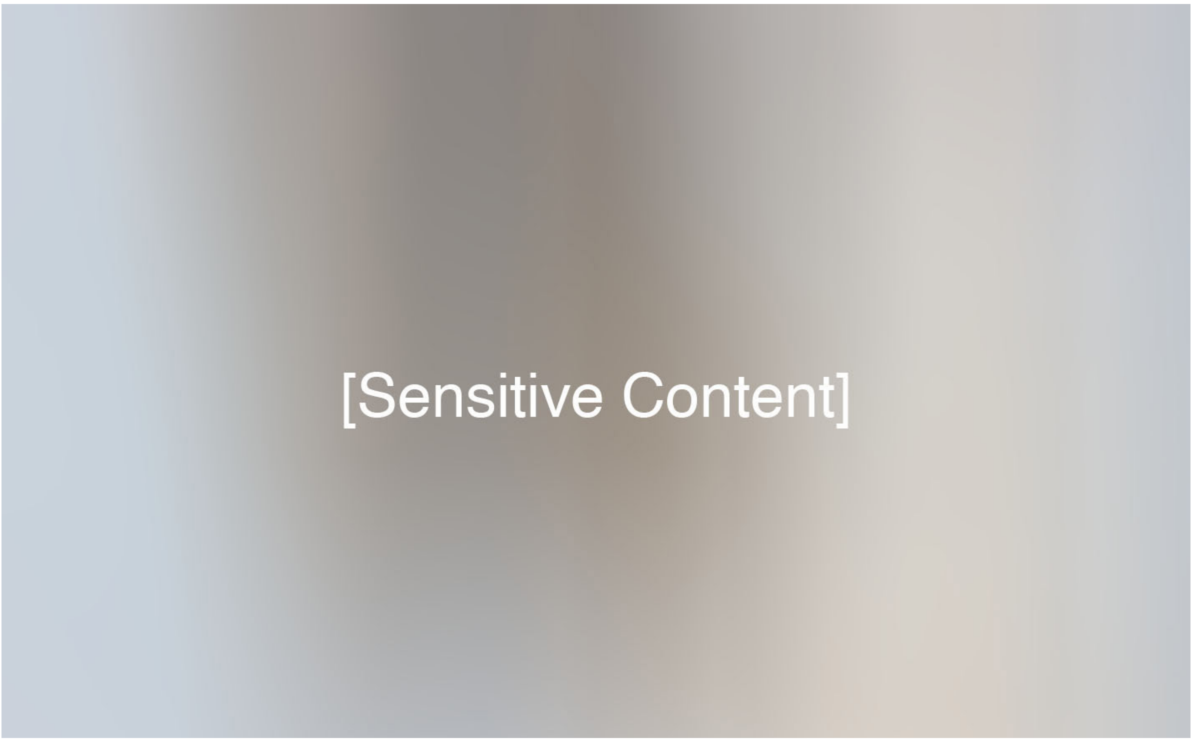


Figure 7.103. *Bevel on semicircular defect on the dorsal left scapula from Burial 27.*

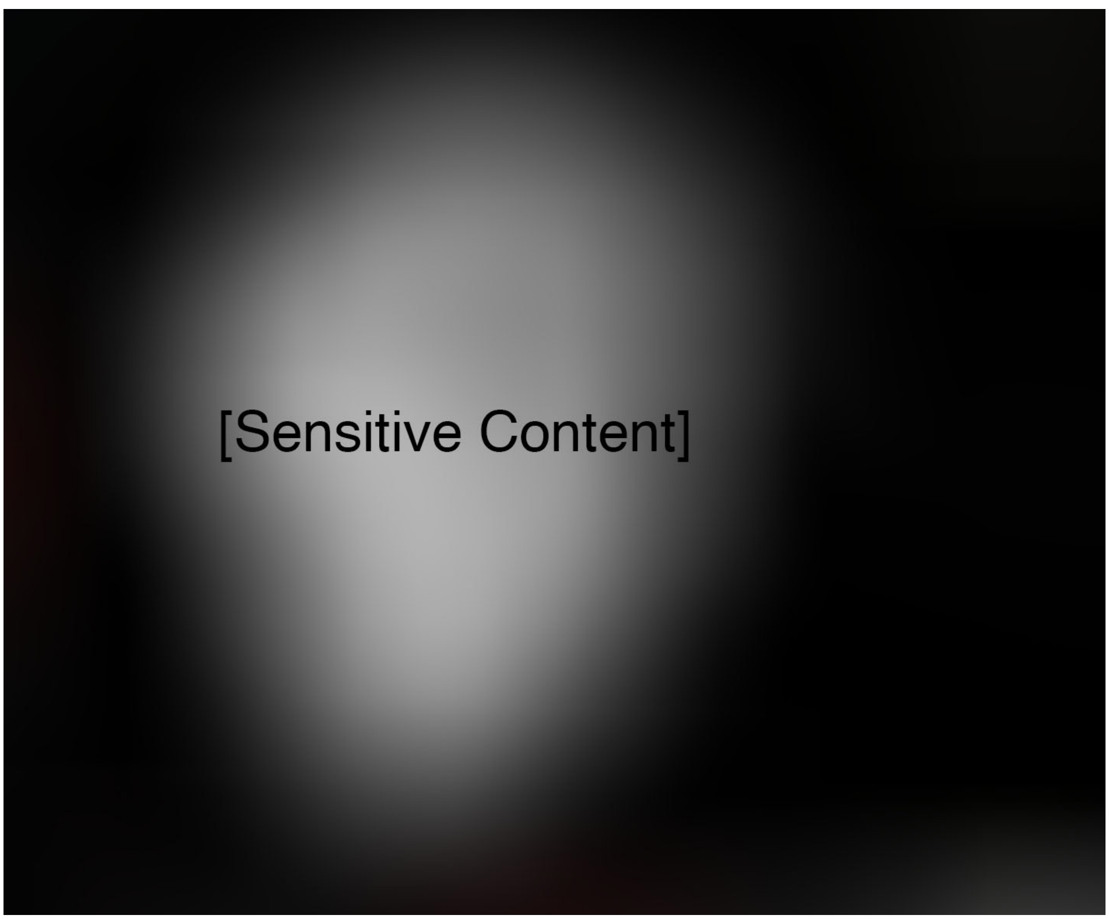


Figure 7.104. *Intake radiograph of skull from Burial 27.*

Figure 7.105. *Projectile recovered from Burial 27 cranial cavity.*

The bullets are similar in design, being unjacketed lead cores with a crenulated groove above a concave base. Both bullets are deformed, which is consistent with the presence of radiopaque particulate scatters in the adjacent tissues.

Postmortem Damage

Skeletal fragmentation and staining of bones from decomposition and soil is consistent with prolonged burial; the overall condition is similar to others in this exhumation cohort. The archaeological notes indicate that the right femur was laterally rotated and the right fibula was located medially, probably due to repeated water intrusions into the coffin, during decomposition (Figure 7.106).

DNA Sampling

Two petrous temporals and teeth #17 and 30 are retained as samples for later DNA analysis (Figure 7.107).

Summary of Conclusions and Opinions:

The individual exhumed from Burial 27 and accessioned as Oaklawn Unknown #18 is a probable male in his late twenties, of speculative ancestry. Using circumstantial evidence that he is a Black male, his stature is estimated to approximately 67 inches.

A minimum of three (3) areas of projectile trauma are present that likely contributed to his death. The left shoulder has a penetrating gunshot wound in a trajectory from anterior to posterior.

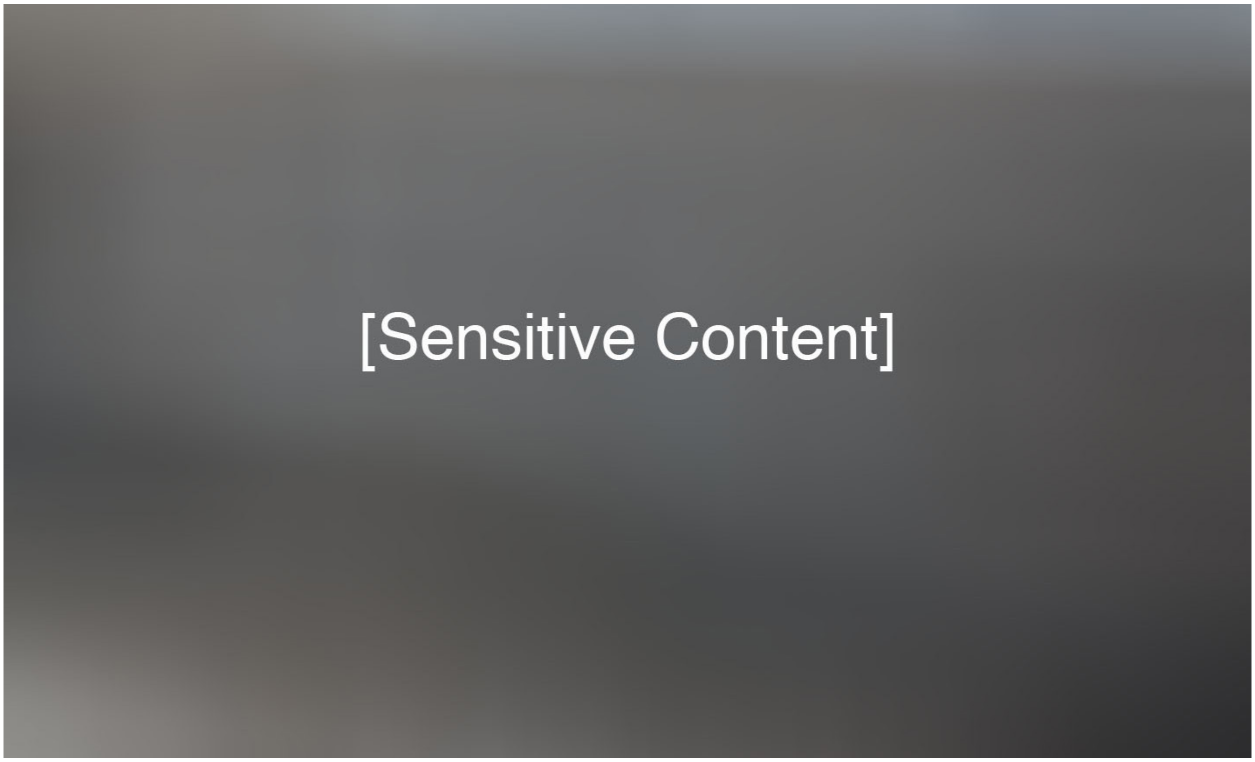


Figure 7.106. *Postmortem arrangement of lower limb elements of Burial 27.*

Figure 7.107. *DNA specimens retained for Burial 27 (left) and the bundled remains (right).*

A deformed bullet is recovered in the vicinity of the shoulder, within but not below the skeleton, as would be expected if it is the bullet that perforated the left shoulder blade. Therefore, this bullet is attributed to a separate gunshot wound. Either of these wounds may be related to the radiopaque scatter in the adjacent cervical vertebrae. The third wound is to the cranium, entering through the face as demonstrated by metallic scatter near the sphenoid sinus, and not exiting. The bullet is recovered from the posterior cranial cavity. The bullets are similar in design, being unjacketed lead cores with a crenulated groove near the base. Additional gunshot wounds or trauma is not excluded, as further interpretations are limited by the level of preservation of these skeletal remains.

Linear enamel hypoplasia is present on several teeth, indicating stress from illness or other causes during infancy. No individualizing traits are observed in these skeletal remains.

Preservation of his remains is consistent with other individuals in this burial cohort for staining and fragmentation. Cranial and dental specimens are retained for DNA analysis.

Based on biological sex, coffin style, probable ancestry, and identifiable trauma, this individual possesses the features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. Conspicuously he was buried in an unusual location in Section 20, in that he was buried in an infant row at the same atypical depth as infant Burial 26. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly deriving the context of his burial.

Burial 28

Tulsa Race Massacre Investigation Burial Number: 28
Oaklawn Unknown Number: 15
Field Catalog Number: 304

Condition of Remains

These skeletal remains are friable and very fragmentary (Figure 7.108). Many elements, especially vertebrae, ribs, and manual/pedal elements, are represented by dust and bone fragments in the correct anatomical locations. The right femur is intact, the cranium is in large fragments, and the thoracic elements are poorly preserved. Coffin hardware and a plaque were exhumed with the remains.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

After cleaning the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right and Left Radii
Teeth #2, 6, 11,12 (root only), 13, 15, 17, 18, 21, 27, 28, and 32.	Right and Left Os Coxae
Right and Left Ribs	Right and Left Femora
Cervical, thoracic, lumbar and sacral vertebrae	Right and Left Patellae
Right and Left Clavicles	Right and Left Tibiae
Right and Left Scapulae	Right and Left Fibulae
Right and Left Humeri	Manual elements
Right and Left Ulnae	Pedal elements

Sex

This individual is female. Cranial and pelvic traits (Buikstra and Ubelaker 1994) have predominately feminine morphology, including a wide sciatic notch, large preauricular sulcus, small mastoid process, sharp supraorbital margins, a flat glabella region, and a small mental eminence.

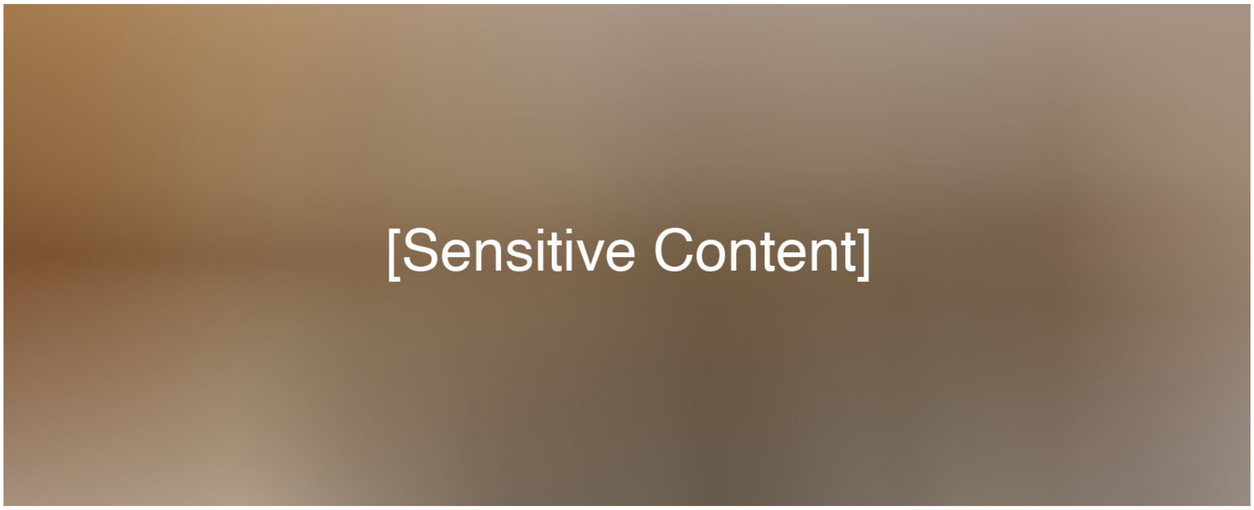


Figure 7.108. *Overview of the Burial 28 skeletal remains upon arrival in laboratory.*

Ancestry

Ancestry could not be reliably estimated for this individual due to fragmentation (Figure 7.109). The base of the nasal aperture is preserved and is fairly broad and possessed a nasal gutter on one side, which are traits associated with individuals of African descent. However, more traits are needed for a conclusive morphological ancestry estimate. Circumstantially, the burial location and scant non-metric traits supports a designation as Black for stature analysis.

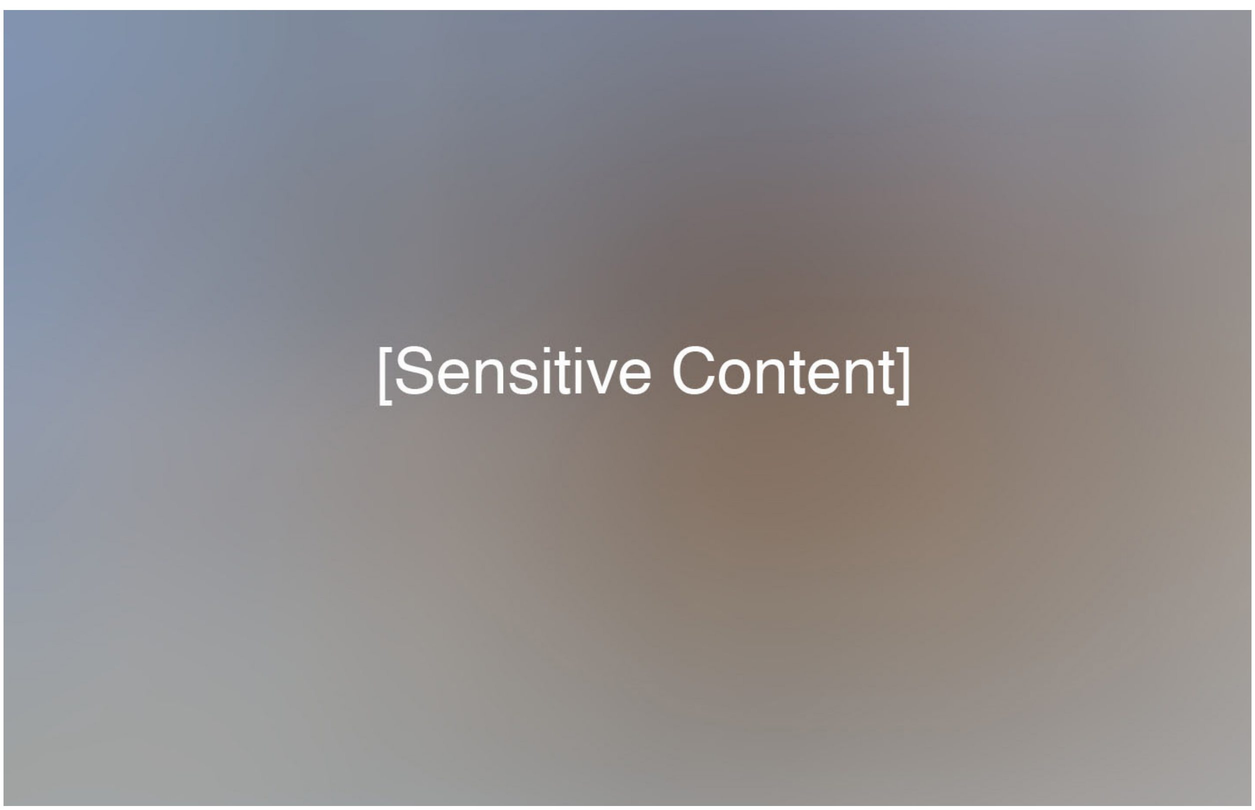
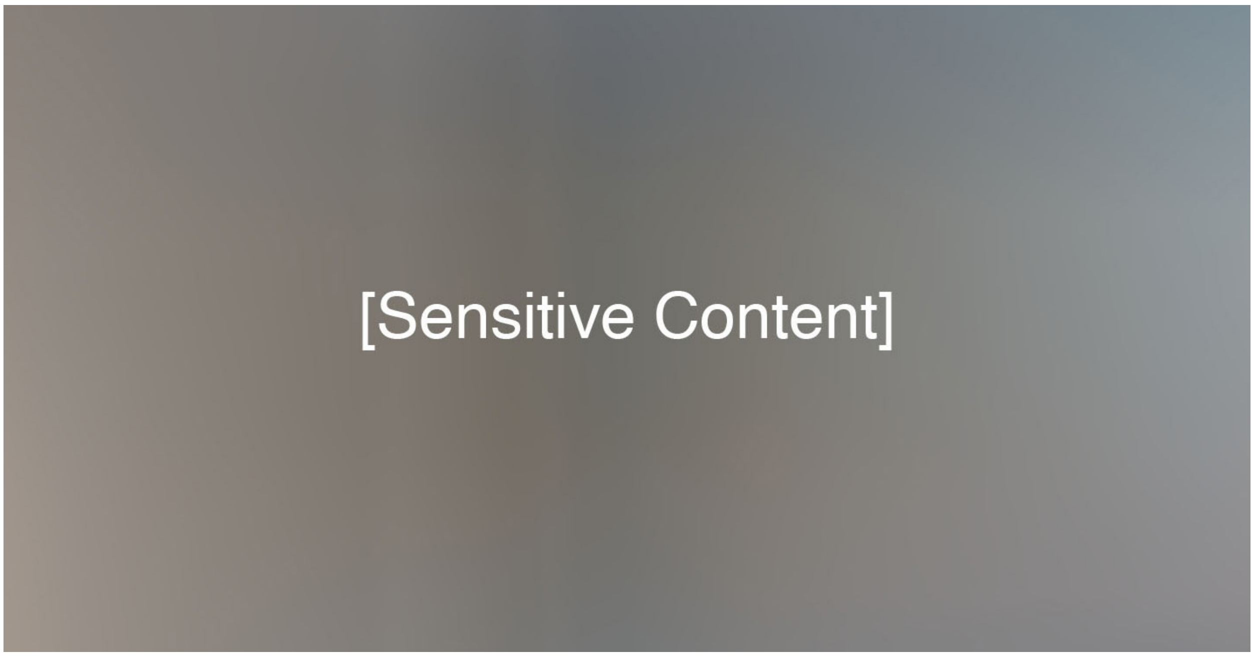


Figure 7.109. *Anterior view of the reconstructed Burial 28 skull.*

Age

This woman is an older adult, older than 40 years. The observable epiphyses and space between sacral vertebrae 1 and 2 are fused. Osteoarthritis features (lipping) are present. The auricular surfaces are assessed to Phases V and VI (Buckberry and Chamberlain 2002), yielding a mean estimate of 59 or 66 years (age range of 29-91 years). She has advanced dental attrition, having lost most of the anterior teeth. The teeth recovered demonstrate occlusal wear between the few anterior teeth and the bridge, and the remaining molars (Figures 7.110-7.112).



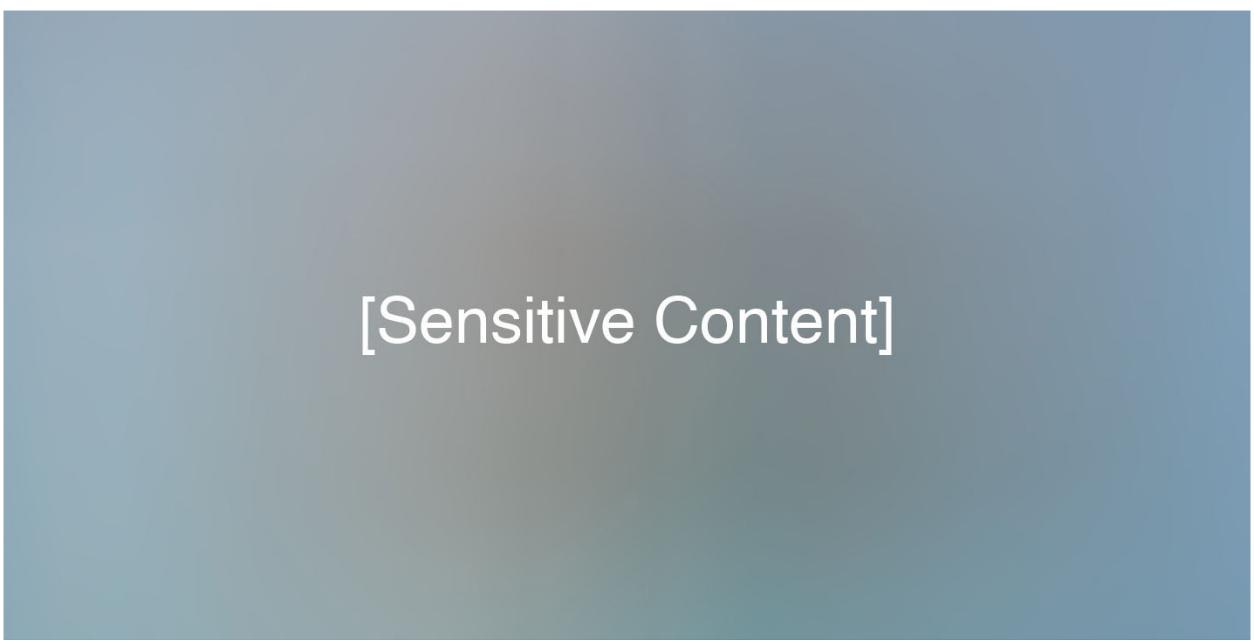


Figure 7.110. *Anterior and posterior views of the maxillary dental bridge from Burial 28, featuring composite incisors, gold crowns and lingual surface.*

Stature

Based on the classification as Black female, using Fordisc version 3.1.321 19th Century population and the combined measurements of the clavicle, femur and sacrum, stature is estimated at 61.5 inches, +/- 2.2 inches, using a 95% predictive interval. The formula used is

Stature [61.5 inches] = 0.07296 * CLAXLN+FEMBLN+SACAHT (657 mm) + 13.60.

Individualizing Traits Or Anomalies

This individual possessed a dental bridge replacing anterior maxillary teeth #7-10 (see Figure 7.110). The bridge is composed of an unknown composite with a gold lingual surface, and gold crowns that attach the bridge to the adjacent canines (teeth #6 and 11).

Antemortem or Pathological Conditions

Degenerative joint disease is evident on many of the thoracic vertebrae in the form of lipping and narrowing of the vertebral bodies (Figure 7.113). The left scapular glenoid fossa also preserved advanced lipping.

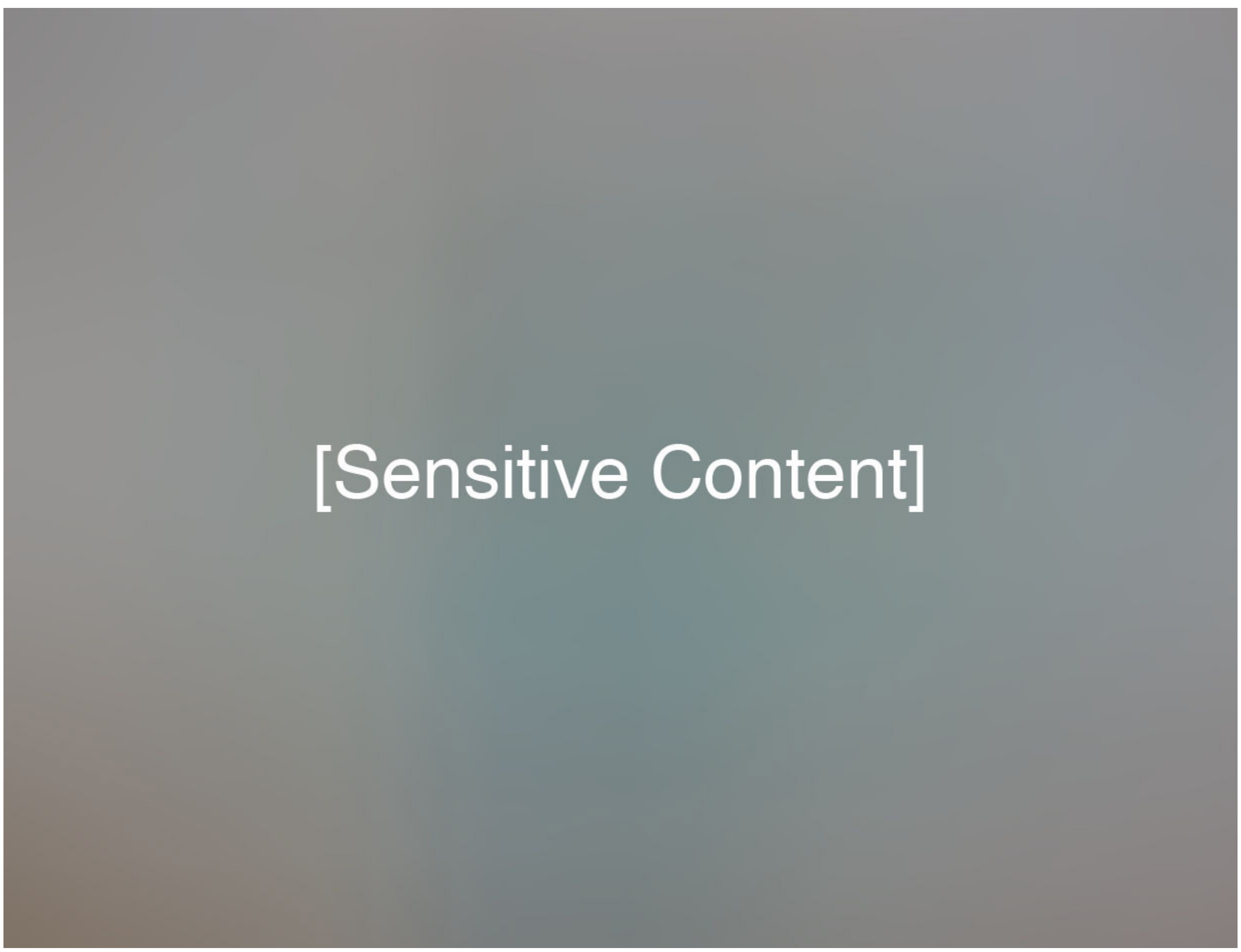


Figure 7.111. *The lower dentition from Burial 28. The teeth have unusual wear patterns due to occluding with the gold bridge.*

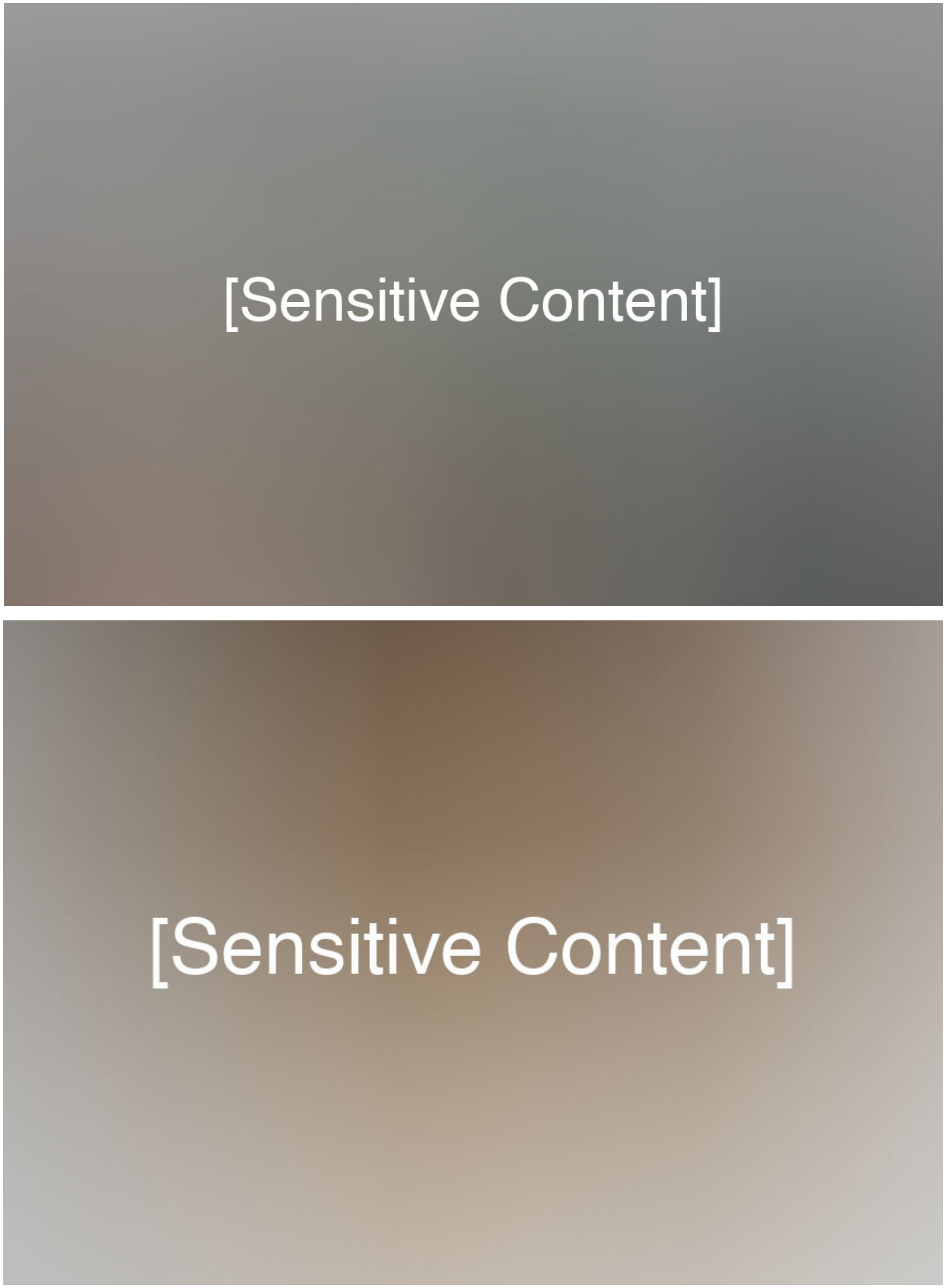


Figure 7.112. *Dentition from Burial 28.*

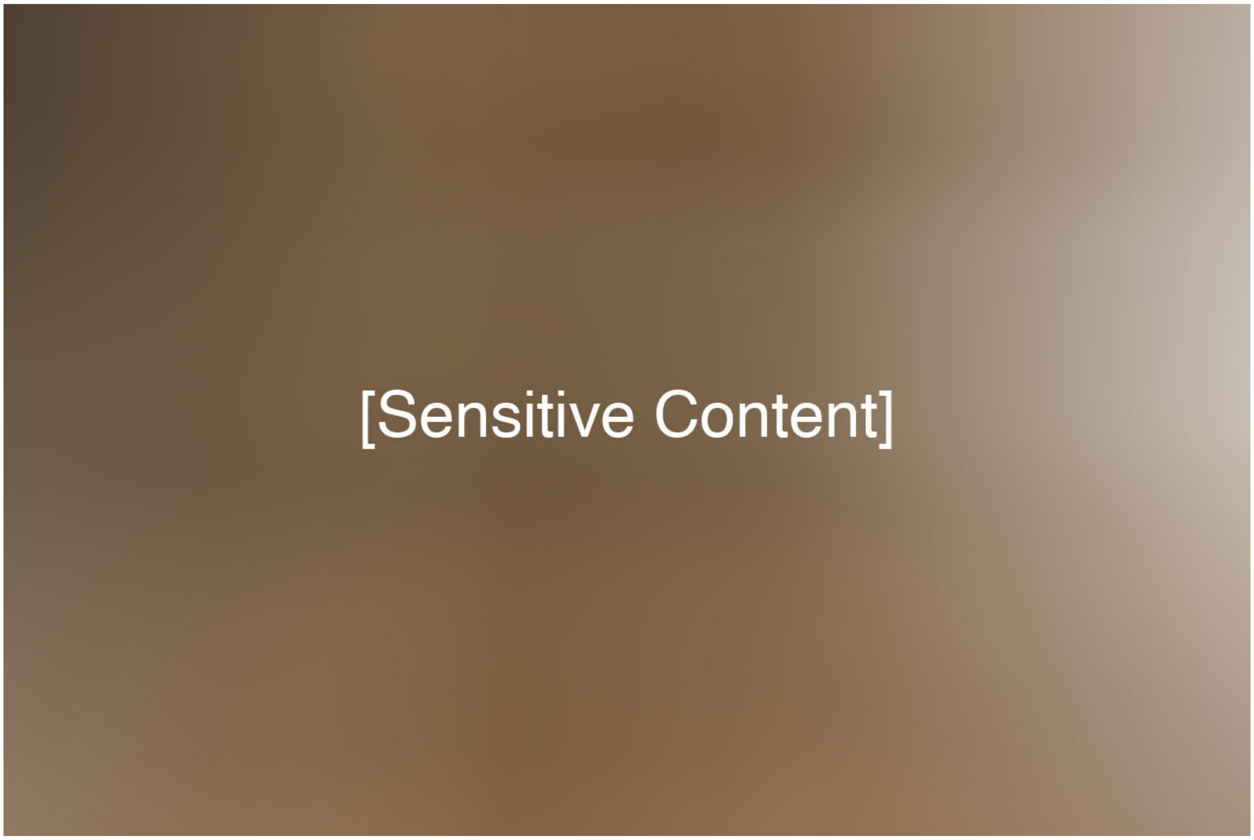


Figure 7.113. *Thoracic and lumbar vertebrae from Burial 28, showing the osteophyte development.*

Perimortem Trauma

No signs of trauma associable with a cause of death are observed.

Postmortem Damage

Skeletal fragmentation and staining is consistent with prolonged burial and similar to others in this exhumation cohort.

DNA Sampling

Two petrous temporals and teeth #1, 2, 15, 17, 27, 28, and 32 are retained as samples for later DNA analysis (Figure 7.114).

Summary of Conclusions and Opinions

The remains recovered from Burial #28 and accessioned as Oaklawn Unknown #15 represent an active, older woman, circumstantially of African descent. Her stature is approximately 61.5 inches. She wore a dental bridge with a gold interior surface, which replaced her upper incisors and provided gold caps on the adjacent canine teeth. Her activity level is attributed to the advanced arthritic changes in her spine. No signs of trauma associable with a cause of death are observed; however, this assessment is limited by the poor preservation of many skeletal elements. Preservation of her skeletal remains is consistent with this burial cohort. Two petrous temporals and several teeth were retained for DNA analysis.

Figure 7.114. DNA specimens retained for Burial 28 (left) and the bundled remains (right).

Based on biological sex and coffin style, this individual does not possess significant features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the temporal context of her burial.

Burial 29

Tulsa Race Massacre Investigation Burial Number: 29
Oaklawn Unknown Number: 16
Field Catalog Number: 303

Condition of Remains

These skeletal remains are friable and very fragmentary (Figure 7.115). Many elements, especially vertebrae, ribs, and manual/pedal elements, are represented by dust and bone fragments in the correct anatomical locations. The skull is crushed, and teeth are distributed in the soil matrix containing the thoracic elements, which are also crushed. Plant roots have invaded the cranium and mandible. Butvar was applied to the cranium, pelvic girdle and limb elements. A sampling

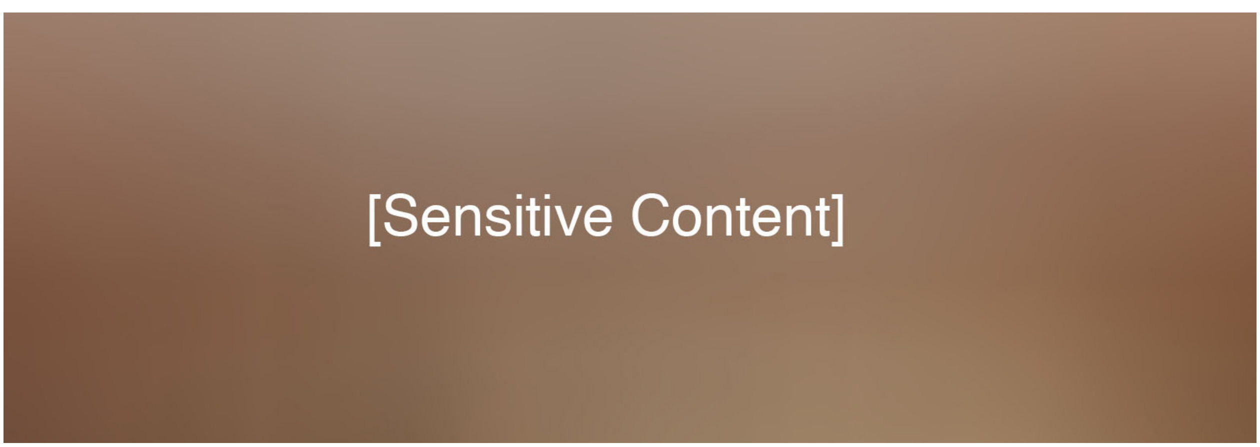


Figure 7.115. Overview of the Burial 29 remains upon arrival in laboratory.

auger had previously passed through the right scapula and ribs. The remains were recovered from a coffin which had been buried within a shipping crate.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

After cleaning the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right and Left Radii
Hyoid (body)	Right and Left Os Coxae
Teeth #1-6, 8, 10-18, 20-30, 32	Right and Left Femora
Right and Left Ribs	Right and Left Patellae
Cervical, thoracic, lumbar and sacral vertebrae	Right and Left Tibiae
Right and Left Clavicles	Right and Left Fibulae
Right and Left Scapulae	Manual elements
Right and Left Humeri	Pedal elements
Right and Left Ulnae	

Sex

This individual is male. Cranial traits (Buikstra and Ubelaker 1994) have predominately masculine morphology, including a large mastoid process, narrow sciatic notch, smooth preauricular area, a rugose nuchal crest, and broad orbital margin.

Ancestry

This individual is probably of African descent and may have identified as Black. Ancestry could not be reliably estimated for this individual due to fragmentation of the skull (Figure 7.116). Craniometric analysis of the reconstructed cranium, using Fordisc version 3.1.317 (Jantz and Ousley 2005) indicated classification in the Black 20th century samples (posterior probability 0.894 and typicalities above 0.6 for the 20th century Black male sample). The nasal aperture morphology is preserved and has a smooth margin (no nasal sill), and a nasal gutter is noted, which are traits associated with individuals of African descent. However, more traits are needed for a conclusive morphological ancestry estimate. Circumstantially, the burial location supports a designation of Black for the purposes of stature analysis.

Age

This man is an adult, likely middle aged. All of his epiphyses are fused, including the joint between the first and second sacral vertebrae. Morphology of the iliac auricular surfaces (Chamberlain and Buckberry 2002) is inconsistent; the left is in Stage VI (mean age of 66.71, range 39-91) and the right in Stage VII (mean age of 72.25, range of 53-92) (Figures 7.117 and 7.118). The middle-age portion of these ranges is applicable, because antemortem dental attrition is beginning in the lower molars (Figure 7.119), and arthritic changes are not observed in the postcrania.

Stature

Based on the classification of Black male, using Fordisc version 3.1.321 19th Century sample, stature is estimated at 71.6 inches +/- 2.5 inches with a 95% confidence interval, using the combined measurements of the calcaneus, femur, and tibia. The formula used is:

Stature [71.6 inches] = 0.04854 * CALCXL+FEMXLN+TIBXLN (1034 mm) + 21.41.

Individualizing Traits or Anomalies

Linear enamel hypoplasia (LEH) defects are noted on teeth #1, 8, and 11. This hypoplasia is frequently associated with periods of high fevers as a subadult. Teeth #9, 19 and 31 were lost antemortem.

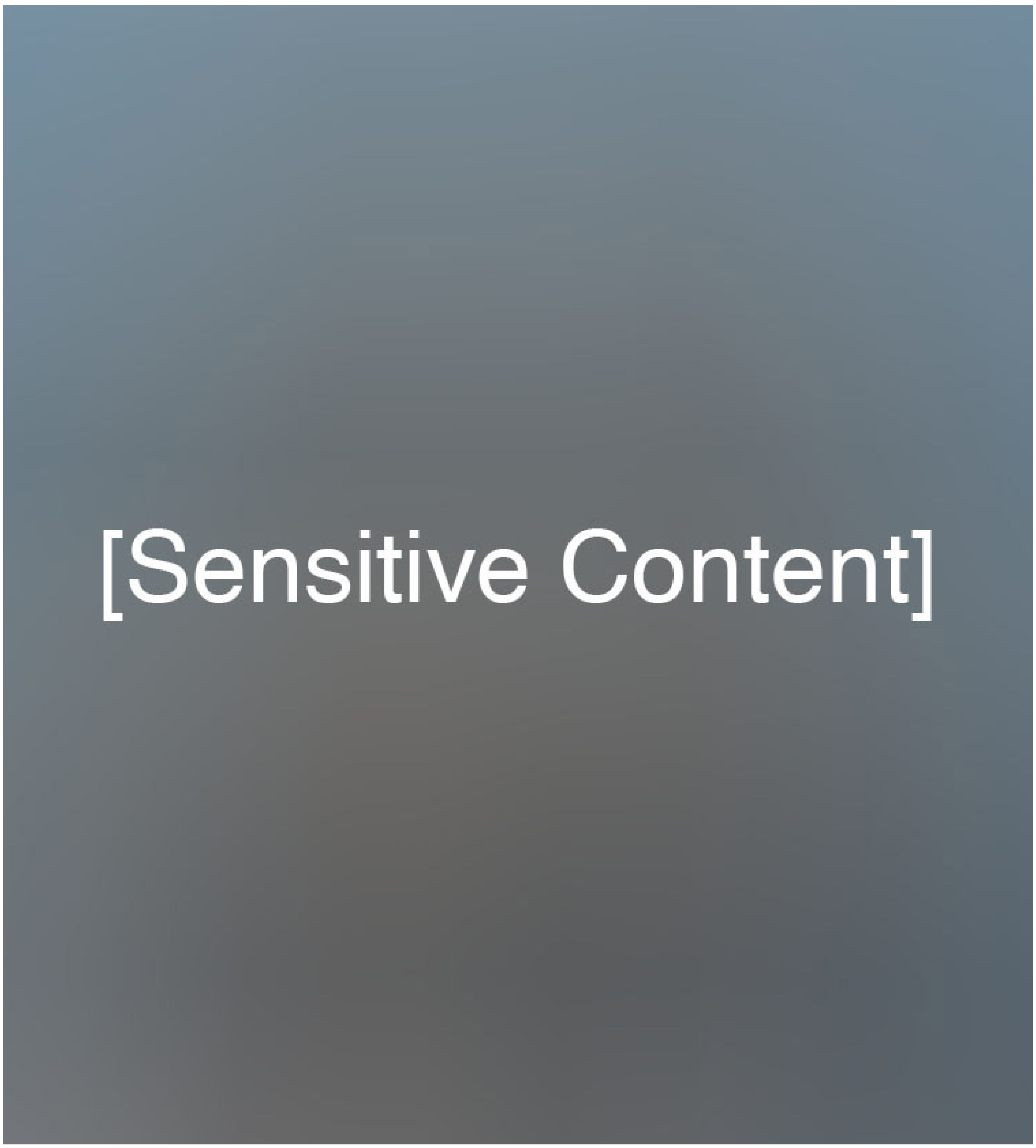


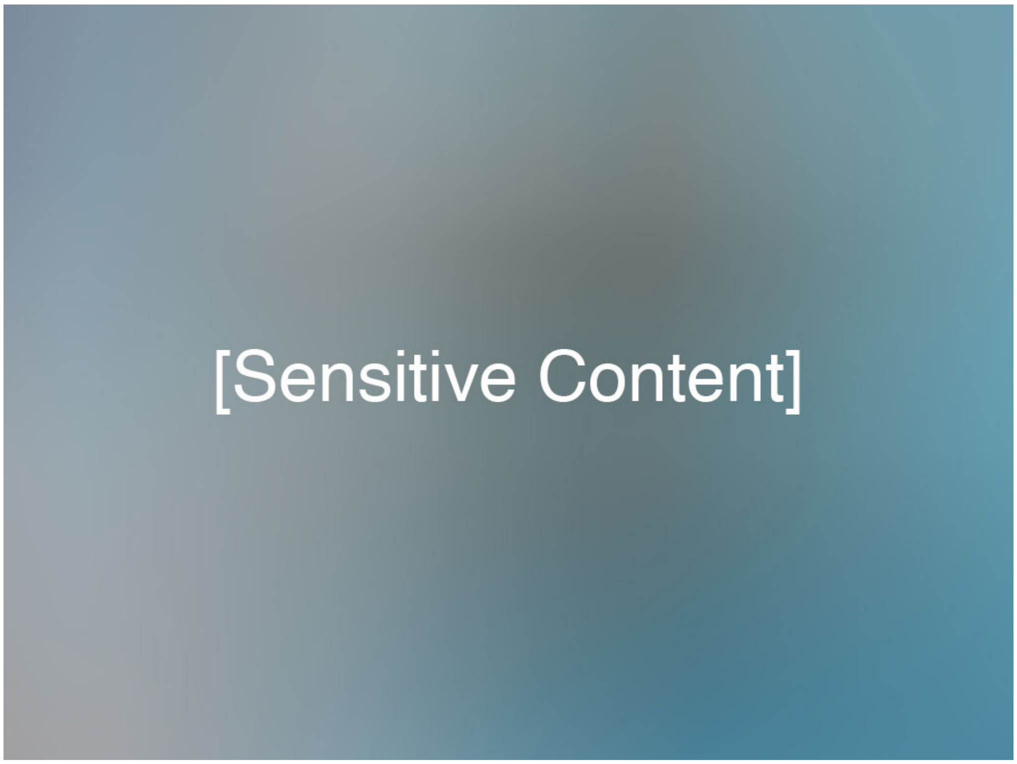
Figure 7.116. *Anterior view of the Burial 29 cranium.*

Antemortem Or Pathological Conditions

No significant antemortem or disease conditions is observed.

Perimortem Trauma

No signs of trauma associable with a cause of death is observed.



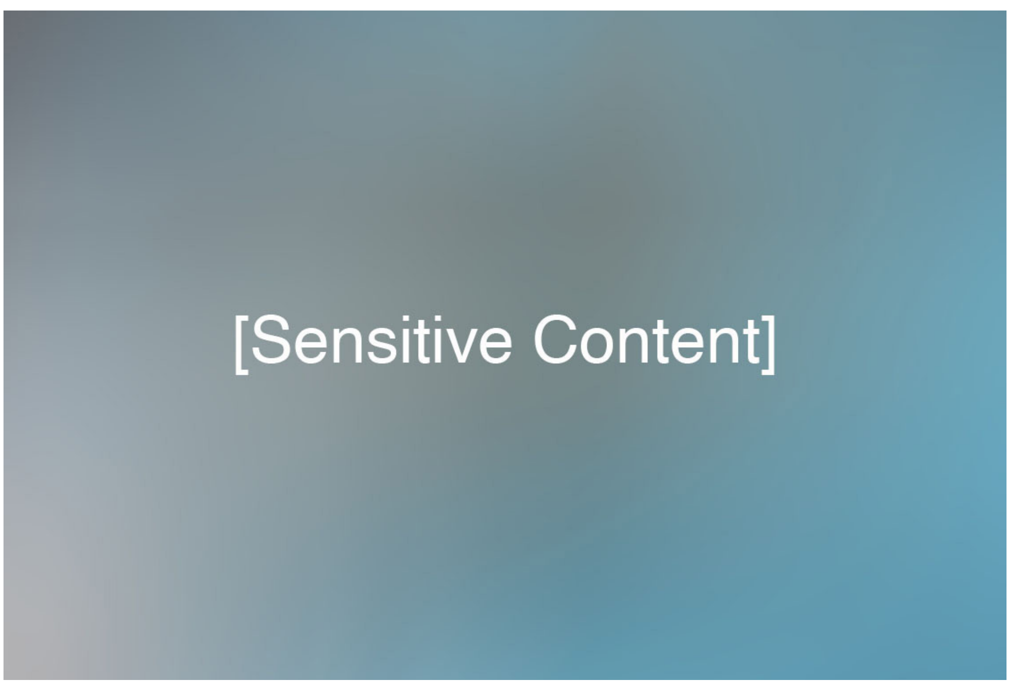


Figure 7.117. *Anterior (top) and oblique anterior views of the maxilla from Burial 29.*

Postmortem Damage

The sampling auger encountered these remains earlier in the investigation of Section 20. The damage to the right scapula and ribs is not distinguishable from the fragmentation and compression present in these remains due to prolonged burial.

DNA Sampling

Two petrous temporals and teeth #1-6, 8, 10, 11, 17, 18, and 20-30 are retained as samples for later DNA analysis (Figure 7.120).

Summary of Conclusions and Opinions

The individual exhumed from Burial 29 and accessioned as Oaklawn Unknown #16 is a male in his middle age who is probably of African descent and may have identified as Black. His stature is approximately 5 feet 11 inches. He was experiencing dental attrition to his right lower molars. No other indicators of health stress are observed, and no signs of healed antemortem trauma are detected. No signs of trauma associable with a cause of death are observed; however, this evaluation is limited by the poor preservation of many skeletal elements. While postmortem fragmentation and soil staining are consistent with this exhumation cohort, these remains were disturbed by the sampling auger in the right shoulder area. Two petrous temporals and several teeth are retained for DNA analysis.

Based on coffin style, this individual does not possess significant features shared by

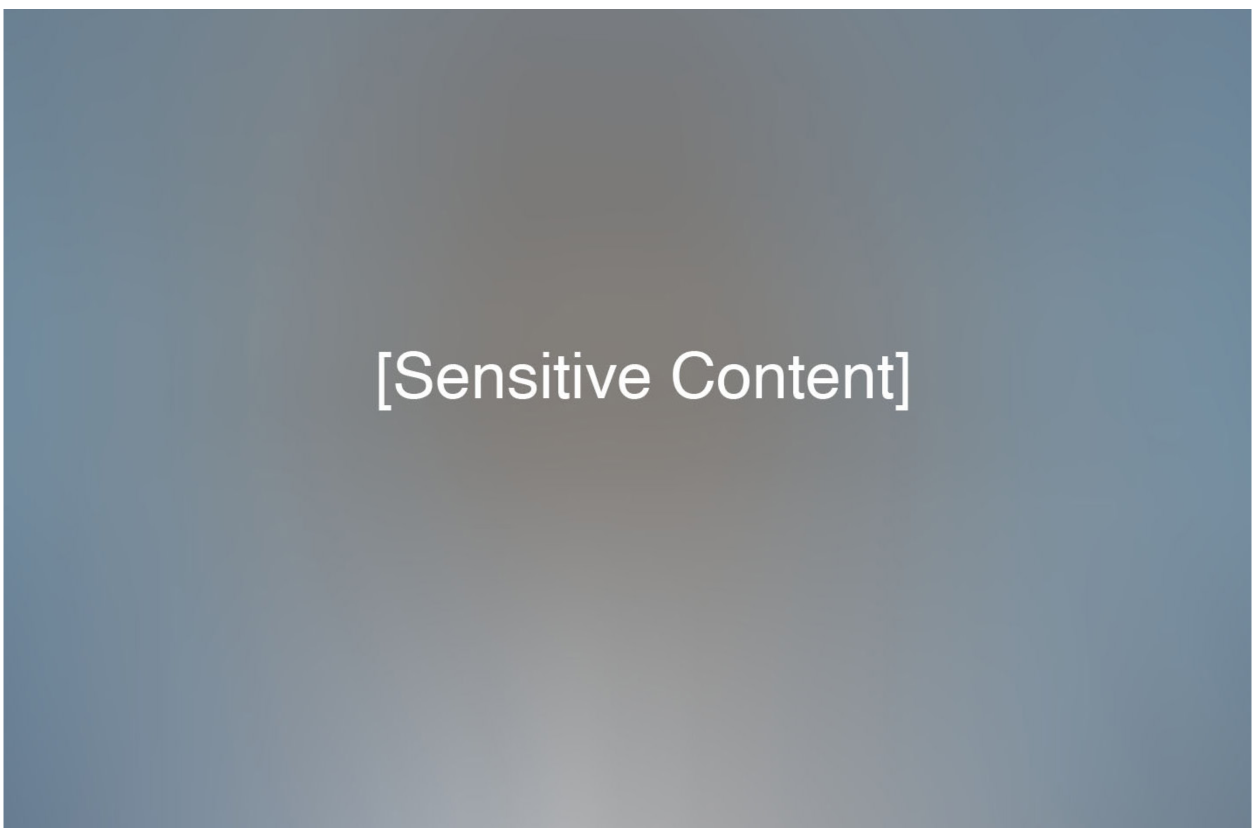


Figure 7.118. *Anterior view of sacrum for Burial 29.*

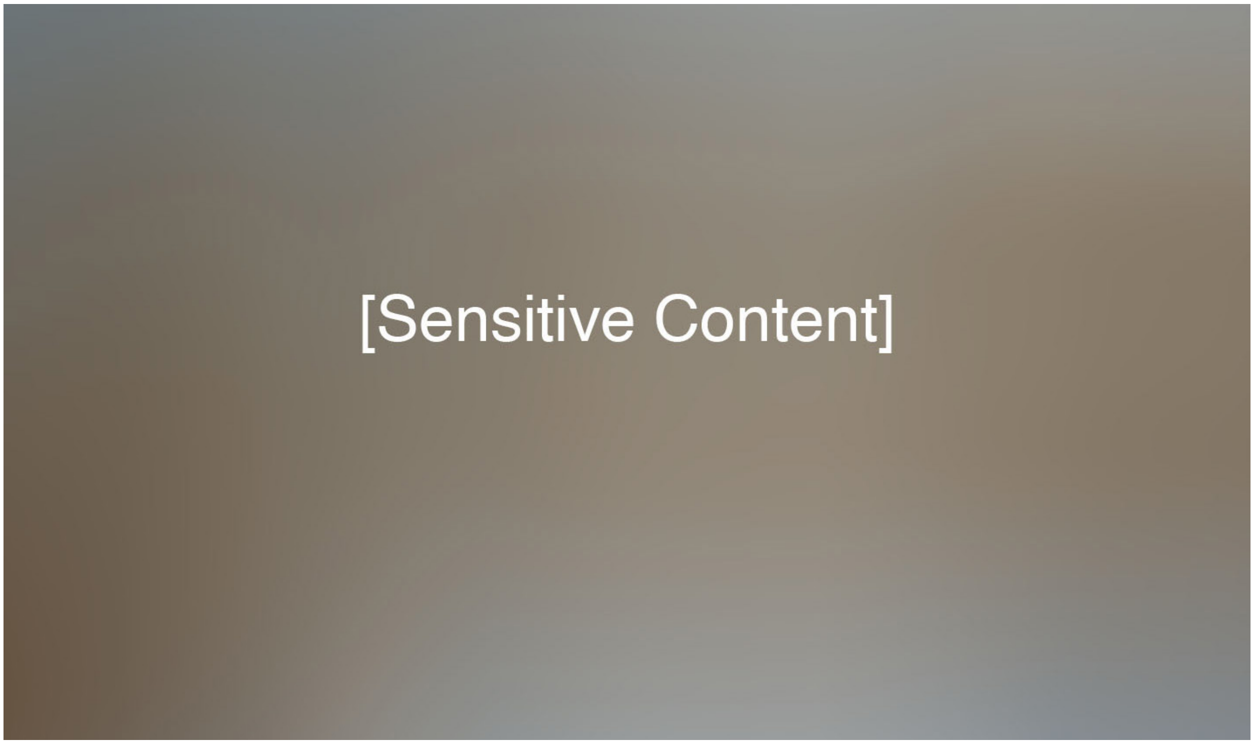


Figure 7.119. *Right and left auricular surfaces of the ilia, for Burial 29.*

the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the temporal context of his burial.

Figure 7.120. *DNA specimens retained for Burial 29 (left) and the bundled remains (right).*

Burial 30

Tulsa Race Massacre Investigation Burial Number: 30
Oaklawn Unknown Number: 19
Field Catalog Number: 66

Condition of Remains

These skeletal remains are friable and very fragmentary (Figure 7.121). The cranium is crushed, with the facial skeleton collapsed into the vault. Butvar was applied to the cranial vault, right humerus, clavicles, and femora. The ribs, vertebrae, and os coxae are observable but fragmentary. Coffin wood was recorded with the remains, but hardware was not noted.

Number of Individuals

One (1) individual is represented by these remains. No duplicate skeletal elements are observed, and no elements of anomalous size or developmental stage are recovered.

After cleaning the following classes of skeletal elements are present:

Skull (cranium and mandible)	Right and Left Radii
Teeth #22-25	Right and Left Os Coxae
Right and Left Ribs	Right and Left Femora
Cervical, thoracic, lumbar and sacral vertebrae	Right and Left Patellae
Right and Left Clavicles	Right and Left Tibiae
Right and Left Scapulae	Right and Left Fibulae
Right and Left Humeri	Manual elements
Right and Left Ulnae	Pedal elements

Sex

This individual is probably male. A robust female is not excluded. Preserved cranial and pelvic traits (Buikstra and Ubelaker 1994), are intermediate in development (nuchal crest, orbital margins, and glabella region), feminine (mastoid process size), and probably male (sciatic notch width). The diameter of the femoral head (49 mm) is consistent with male size.

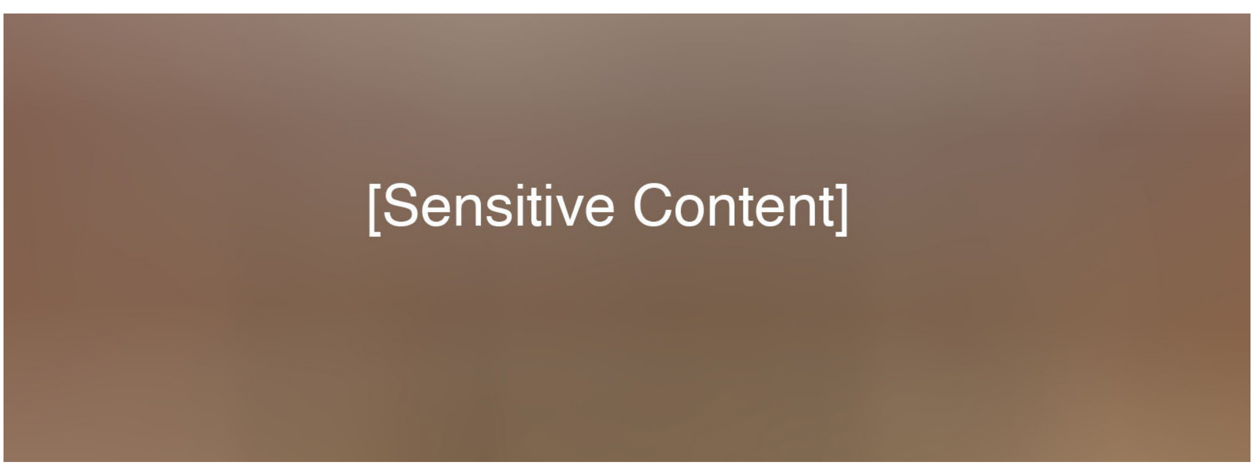


Figure 7.121. *Overview of the Burial 30 remains upon arrival in laboratory.*

Ancestry

Ancestry is not estimated due to fragmentation of the cranium (Figure 7.122). Craniometric analysis with the few measurements available from the reconstructed cranium results in no arguable similarity to any of the Fordisc (Jantz and Ousley 2005, version 3.1.321) populations.

Age

This individual is an older adult, over 40 years. The pubic symphyses resemble male Phase V (Brooks and Suchey 1990), which has a mean age of 45.6 and an age range of 27-66 (Figure 7.123).

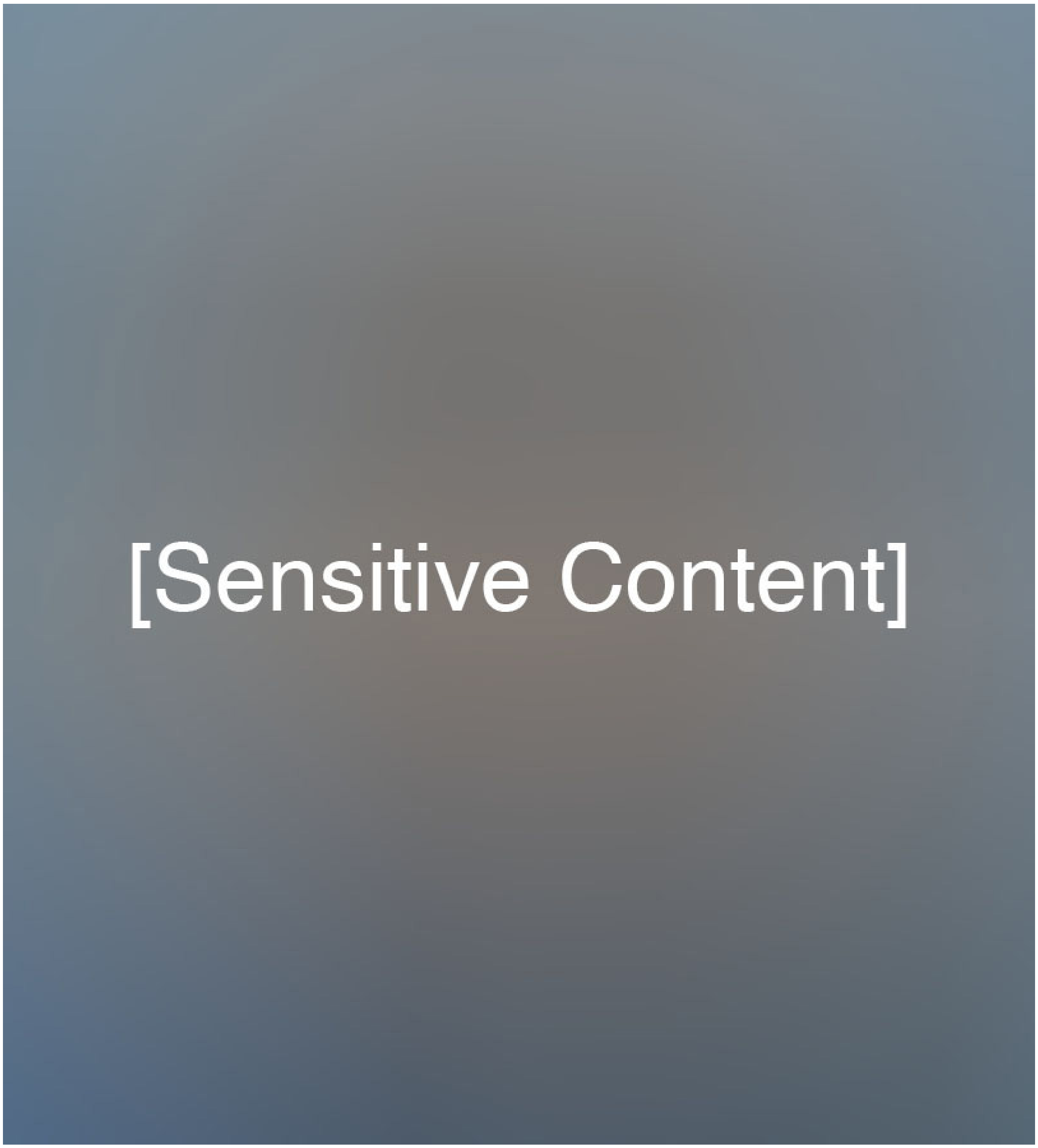


Figure 7.122. *Anterior view of the cranium from Burial 30.*

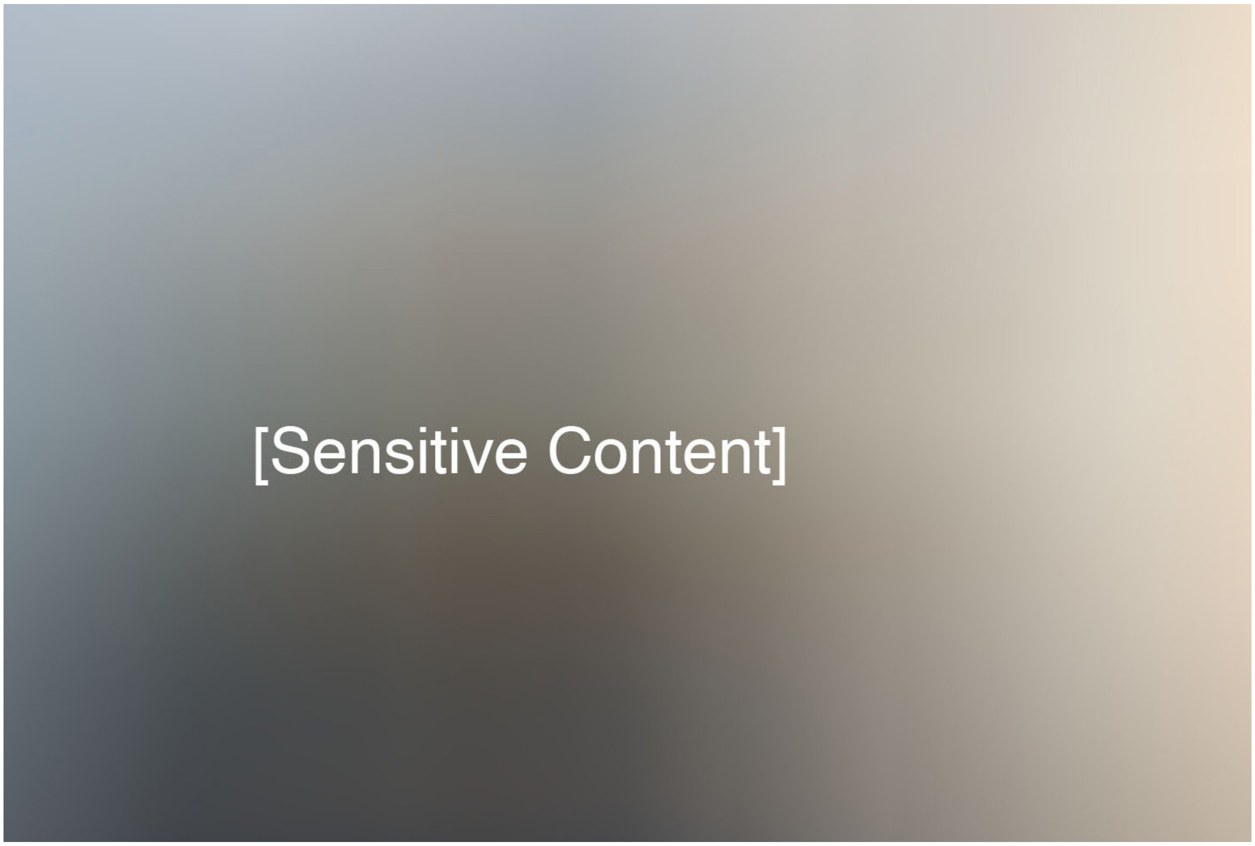


Figure 7.123. *View of pubic symphyses from Burial 30.*

Age estimation from these pubic symphyses is tentative, due to pathological changes present in the pelvic girdle (see ANTEMORTEM TRAUMA OR PATHOLOGICAL CONDITIONS below). All of the epiphyses are fused, including the joint between the first and second sacral vertebrae. The right elbow, lower thoracic vertebrae, and knee joints exhibit arthritic lipping (Figure 7.124); these developments indicate long term chronic activity stress and support the middle age and older status.

Stature

Based on the classification of any population, using Fordisc version 3.1.321 19th Century sample and measurements of the calcaneus and femur, stature is estimated at 67.2 +/- 3.0 inches with a 95% confidence interval. The formula used is:

Stature [67.2 inches] = 0.09381 * CALCXL+FEMBLN (550 mm) + 15.65.

Individualizing Traits or Anomalies

See PATHOLOGICAL CONDITIONS below for features that would contribute to identification if medical records existed.

Antemortem or Pathological Conditions

This individual is nearly edentulous (Figure 7.125). Teeth #22-25 were recovered. Some upper teeth were present near the time of death, but antemortem loss is likely based on the alveolar resorption (Figure 7.126).

Evidence of systemic disease, probably a metastatic condition, is observed in the thorax, and possibly includes the base of the cranium. The petrous pyramids of both temporals are porous. The left glenoid fossa has a perforation that could derive from cholesteatoma, tympanic dehiscence, or other unknown source, although postmortem fracture is not excluded (Figures 7.127-7.129).

The os coxae, especially the right ilium, exhibit osteoblastic periosteal activity and extensive porosity (Figures 7.130 and 7.131). Ribs of the mid-thorax on both sides demonstrate similar periosteal activity and porosity (Figure 7.132). Radiographs show that the trabecular spaces of the ilia, ribs, and scapular glenoid have a moth-eaten appearance (Figures 7.133-7.135). The porous state of the petrous temporals may be related to the same systemic condition.

Perimortem Trauma

No signs of trauma associable with a cause of death are observed.

Postmortem Damage

Excavation notes indicate the left humerus, radius, and ulna were damaged by heavy machinery in the excavation process. The remaining fragmentation and staining is consistent with prolonged burial and similar to others in this exhumation cohort.

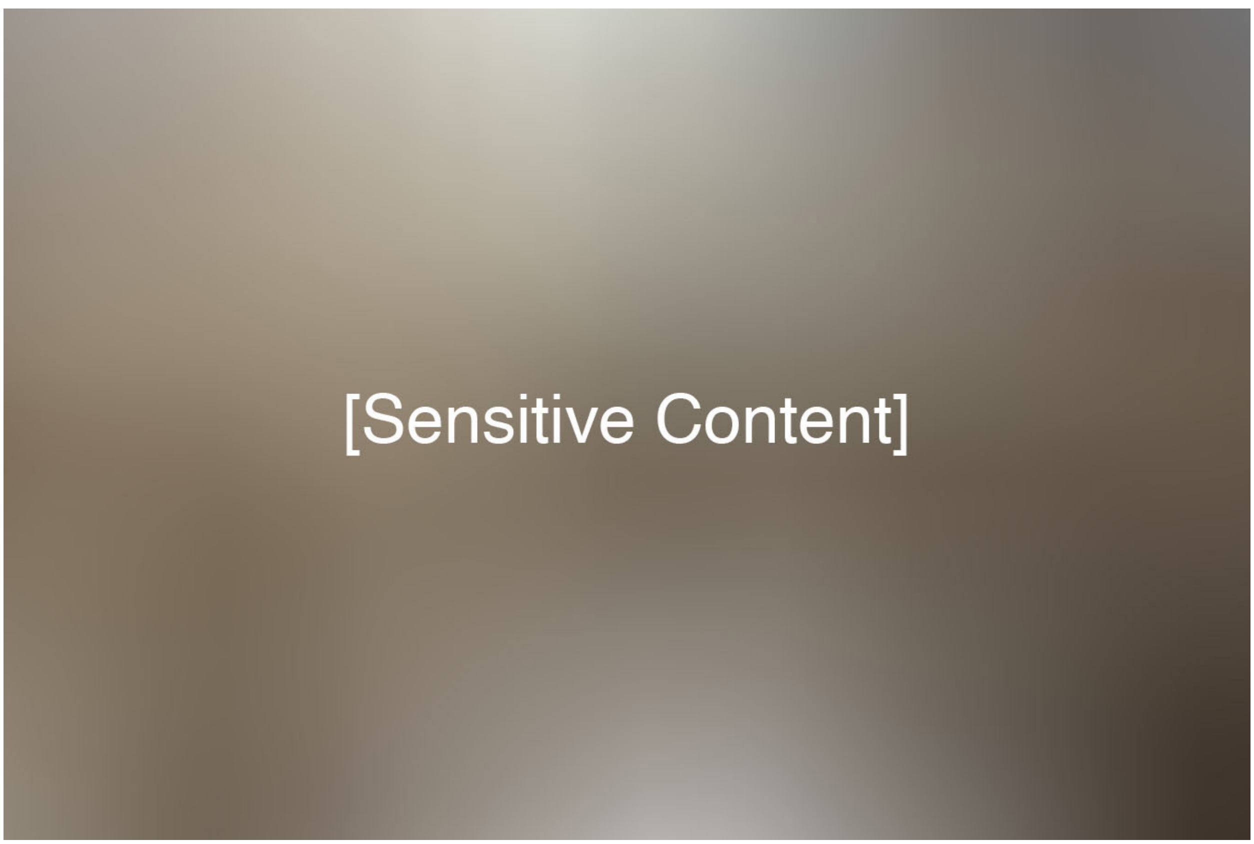


Figure 7.124. *Anterior view of sacrum, showing fused sacral vertebrae, from Burial 30.*

Figure 7.125. *Arthritic changes in the right elbow (ulna and radius) and lower thoracic vertebrae from Burial 30..*

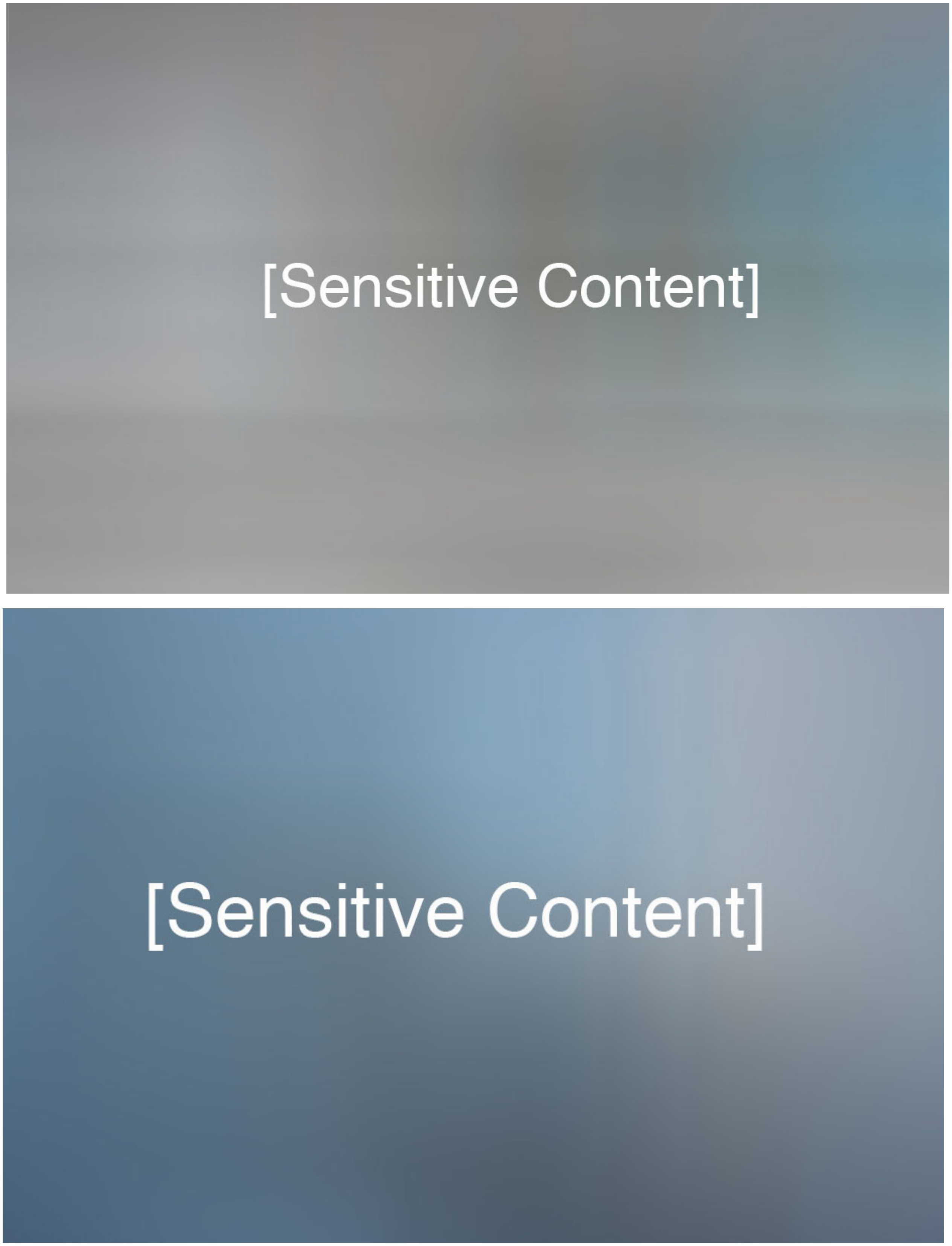


Figure 7.126. *The recovered dentition (mandibular incisors and canine) and mandible (bottom) from Burial 30.*

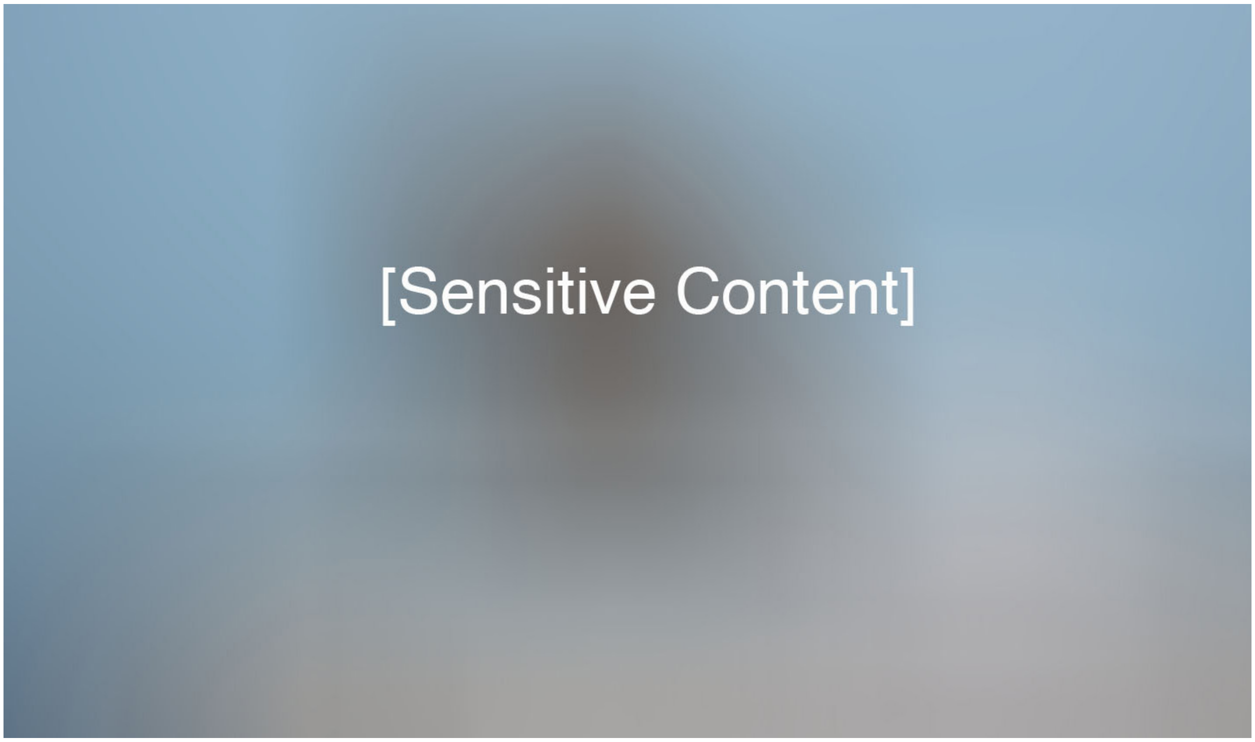


Figure 7.127. *The right maxilla from Burial 30. No maxillary teeth were recovered.*

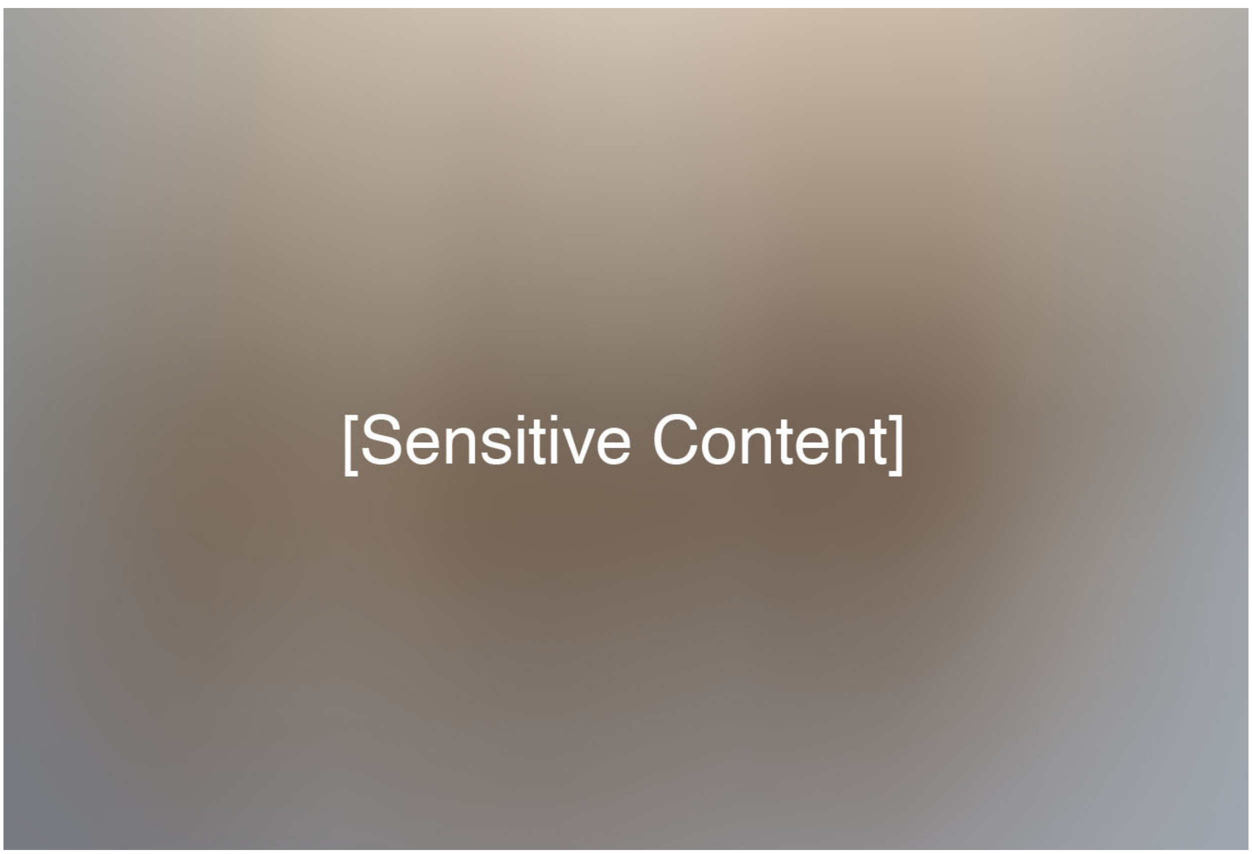


Figure 7.128. *Left and right petrous temporals from Burial 30, posterior endocranial view, showing porosity of the petrous pyramids.*

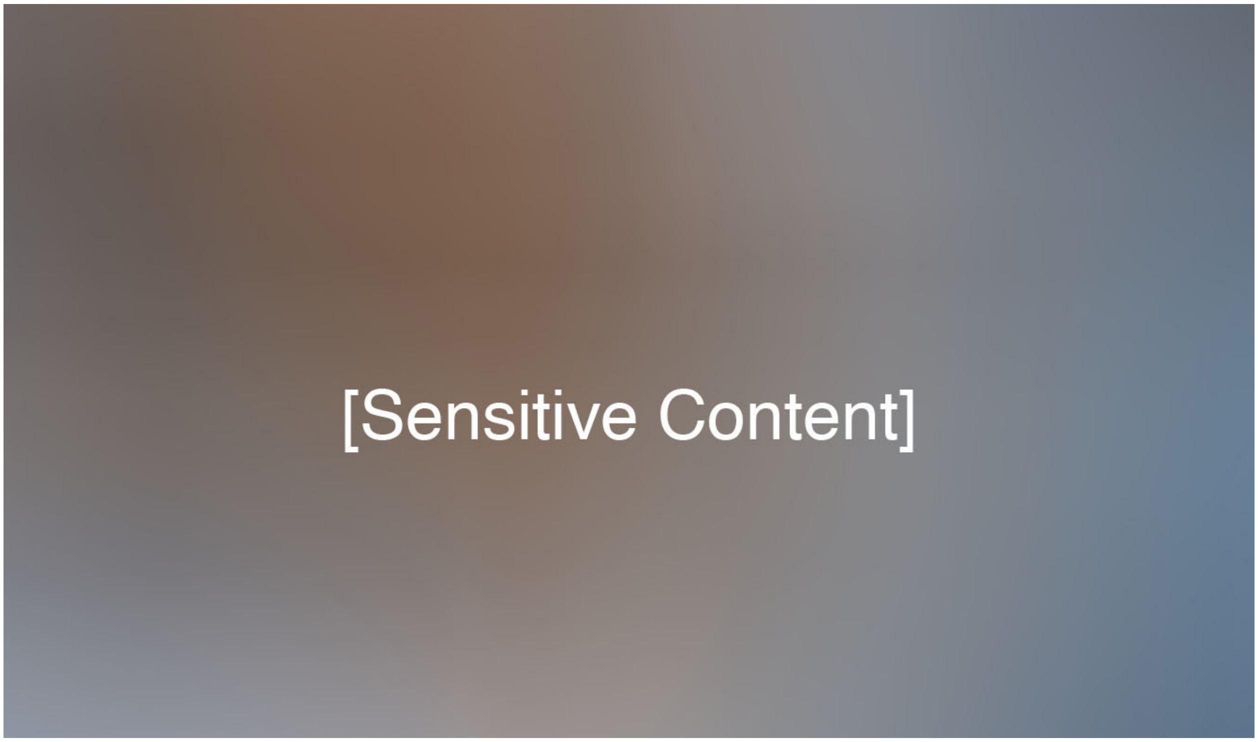


Figure 7.129. *Atypical opening in the floor of the left auditory canal from Burial 30.*

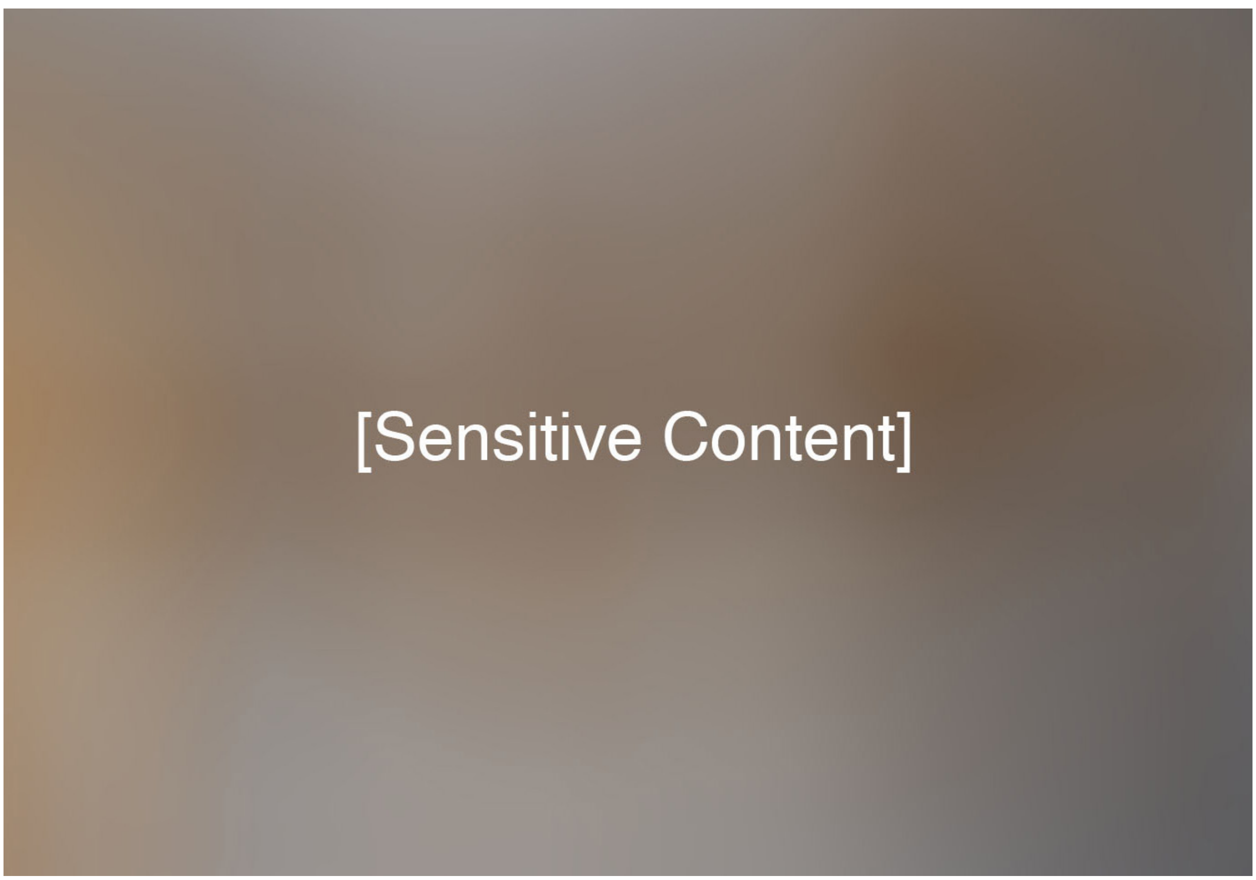
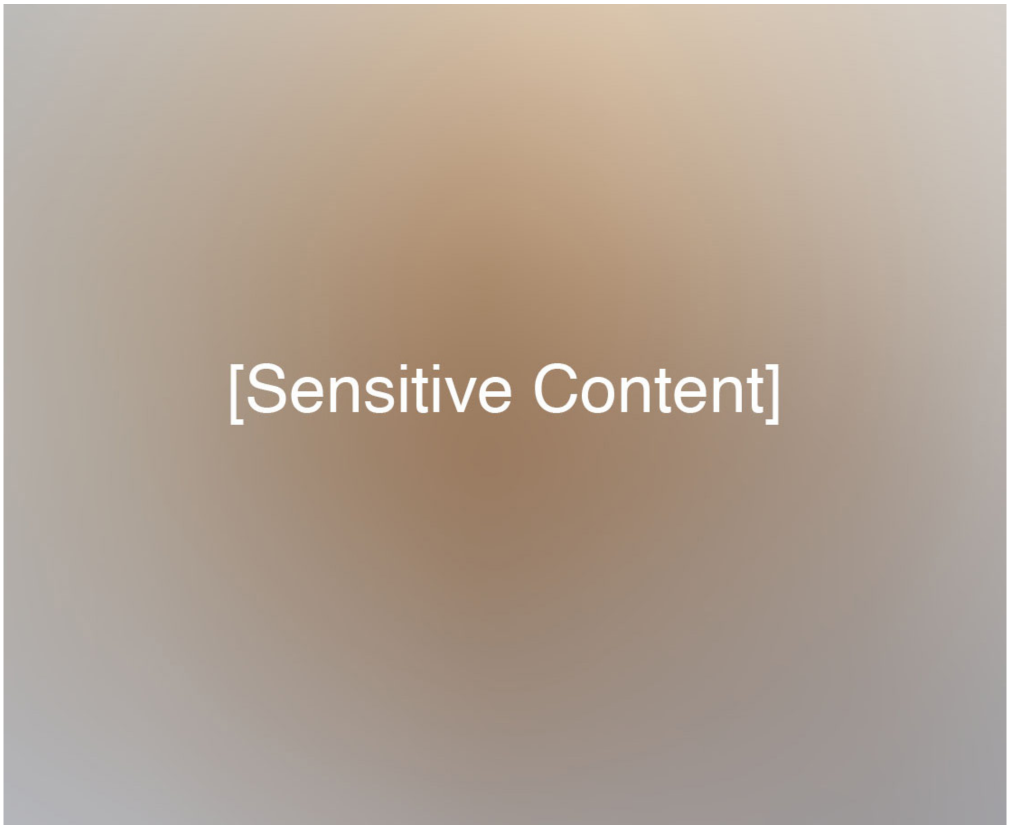


Figure 7.130. *The anterior view of the reconstructed pelvic girdle.*



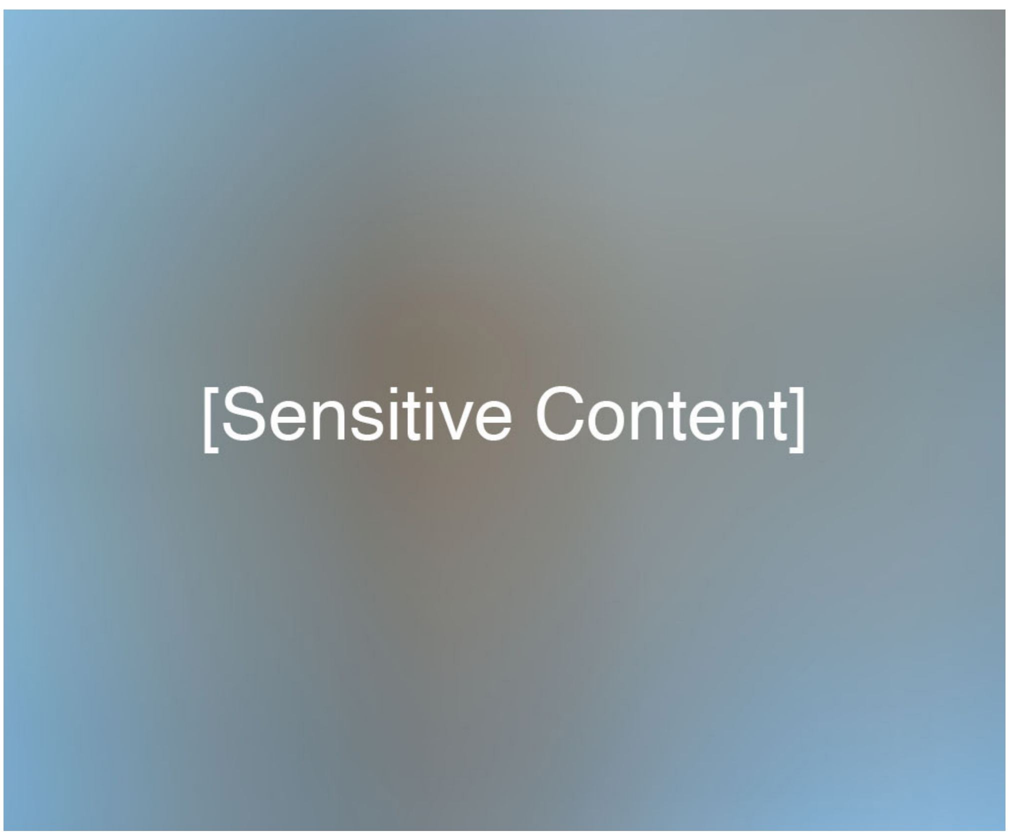


Figure 7.131. *Posterior views of the right (top) and left ilia from Burial 30.*

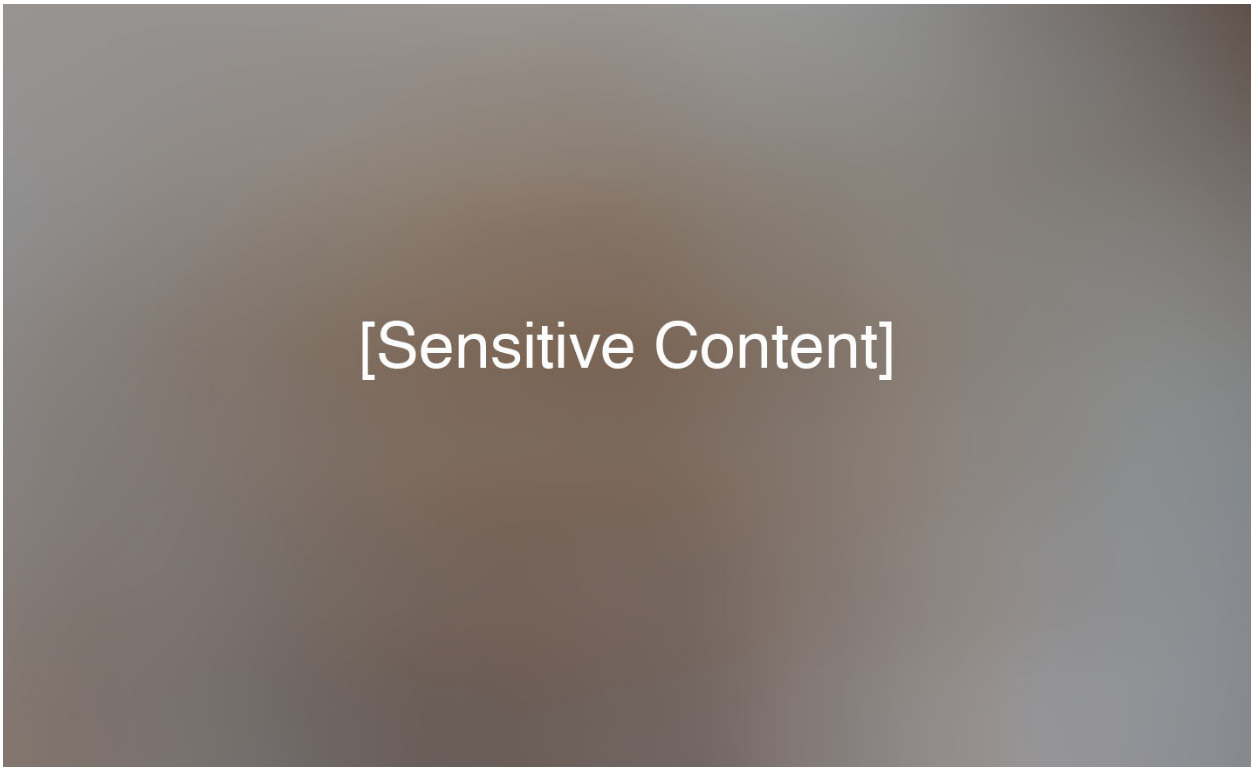


Figure 7.132. *Rib fragments from Burial 30.*

DNA Sampling

Two petrous temporals and teeth #23-25 were retained for DNA analysis (Figure 7.135).

Summary of Conclusions and Opinions

The individual exhumed from Burial 30 and accessioned as Oaklawn Unknown #19 is a probable male of middle to late age. His ancestry is not estimated. He is nearly edentulous except for some lower incisors. His stature is approximately 5 feet 7 inches. No trauma associable with a cause of death is observed, although this assessment is limited by poor preservation of many elements. Preservation did not limit documentation of pathological features associable with a cause of death, as bone deposits and destruction in the ribs and pelvic girdle, coupled with a moth-eaten radiographic appearance, are consistent with metastatic disease. Other conditions cannot be excluded. This individual lived an active life, as indicated by the arthritic changes to the knee and ankle joints and the lower vertebrae. Postmortem fragmentation and staining is consistent with prolonged burial. Two petrous temporals and several teeth were retained for DNA analysis.

Based on biological sex and coffin style, this individual possesses multiple features shared by the Tulsa Race Massacre victims historically recorded in this area of Oaklawn Cemetery. While technically not excluded from the victim sample, the poor health status supports the assignment of a non-traumatic cause of death. DNA analysis is recommended for the purpose of potentially identifying next of kin for this individual and possibly restoring the context of his burial.

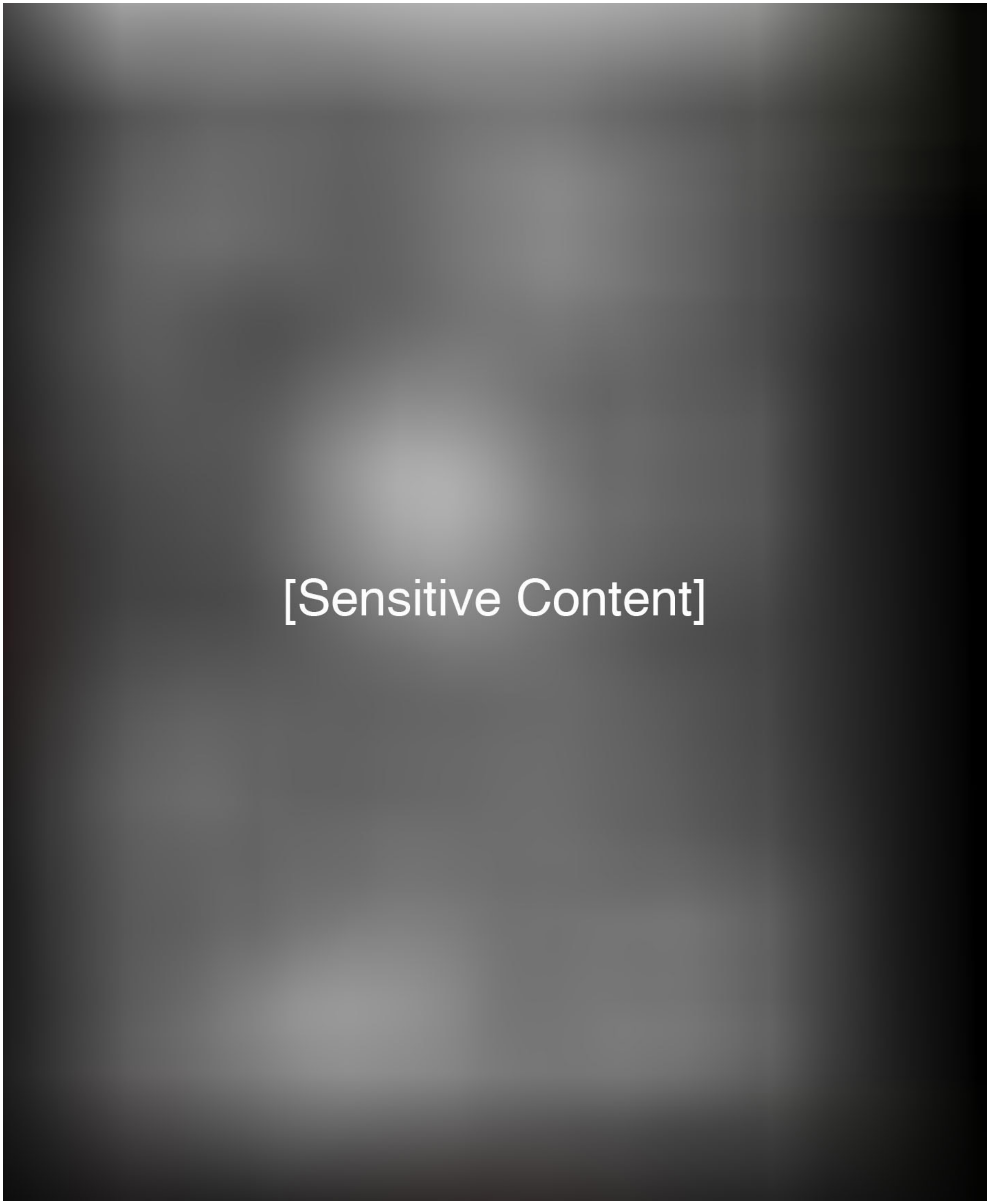


Figure 7.133. *Radiograph of pelvic girdle elements, indicating moth-eaten appearance of internal trabeculae from Burial 30.*

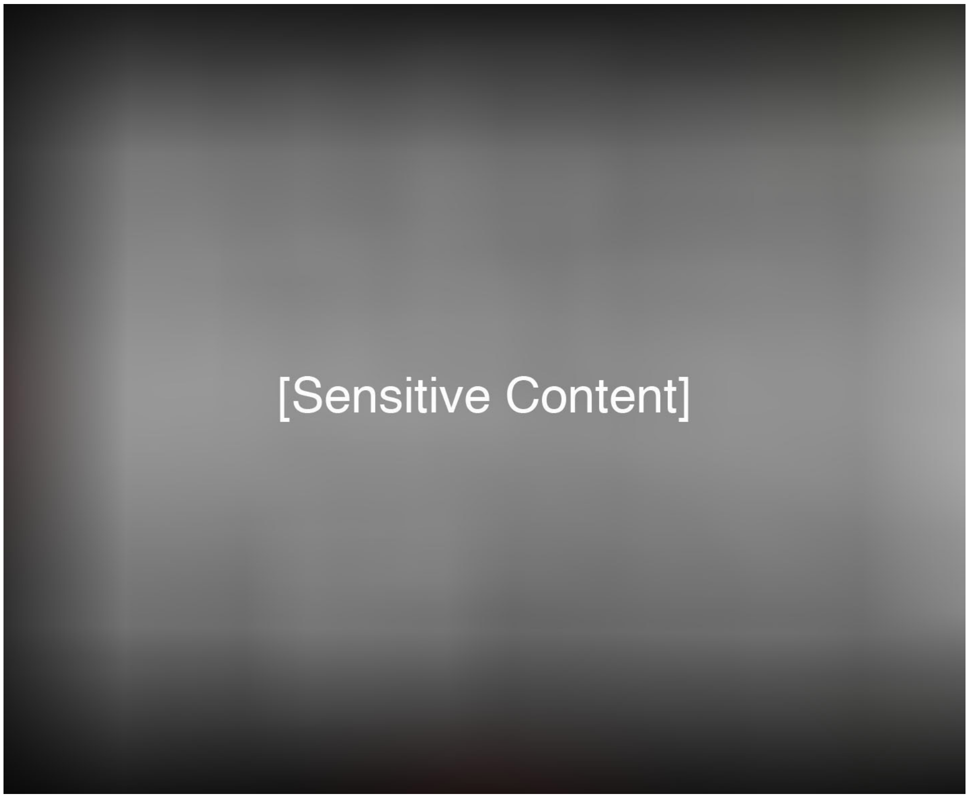


Figure 7.134. *Radiograph of rib and vertebral fragments, indicating moth-eaten appearance of internal trabeculae from Burial 30.*

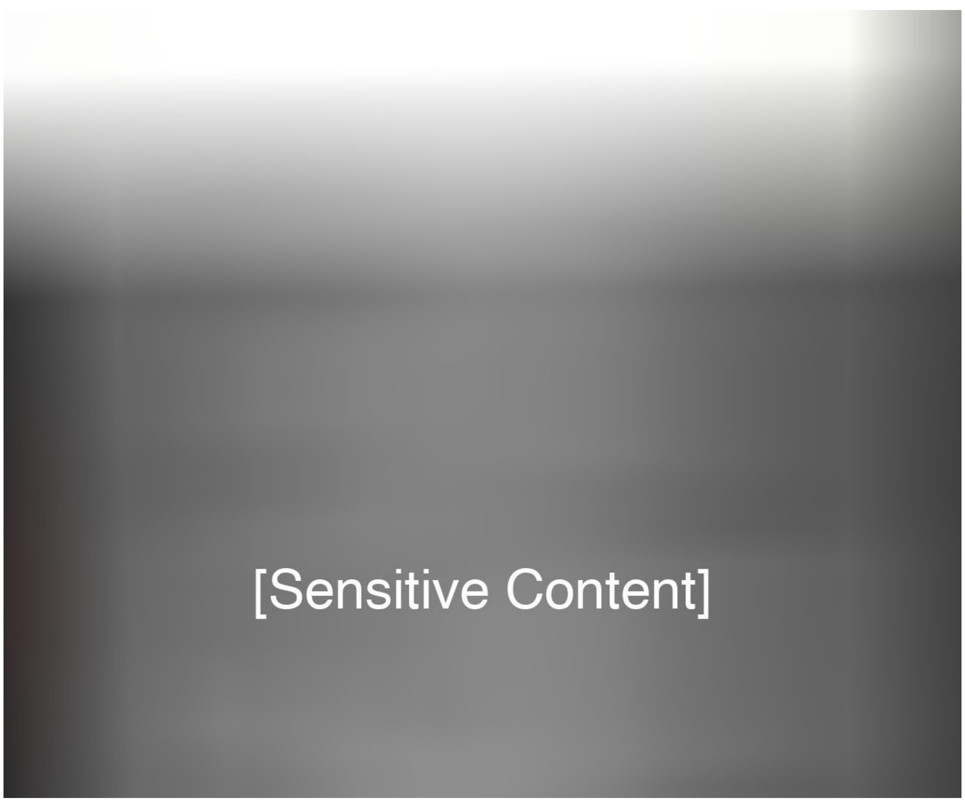


Figure 7.135. *Radiograph of shoulder fragments, indicating moth-eaten appearance of internal trabeculae of the scapula form Burial 30.*

Figure 7.136. *DNA specimens retained for Burial 30 (left) and the bundled remains (right).*

Biological Profile Summary

Nineteen individuals were successfully exhumed (Tables 7.4-7.7). One burial, an infant, yielded no preserved remains. Of the nineteen exhumations, six female adults, eight male adults, and five juveniles were recovered. Nine adults showed convincing or speculative features of African ancestry. Most adults were middle aged or older. The two individuals in their twenties were both male. Estimated adult heights ranged from 63 to 72 inches. Three adults, two males and one female, had gold dental work. One adult male had a healed gunshot wound to the left jaw. Five adults displayed linear enamel hypoplasia, which is a dental malformation associated with high fevers or other severe stresses during infancy and childhood.

One individual displayed trauma and characteristics associated with Tulsa Race Massacre Oaklawn burials. **Burial 27 has multiple gunshot wounds and meets the characteristics of the documented, "Original 18" Tulsa Race Massacre burial: probable African ancestry, male, gunshot wound trauma near the time of death, and buried in a plain coffin.** Other males buried in plain coffins (Table 7.8) are not excluded from being Tulsa Race Massacre victims, as evidence of trauma related to a cause of death may be obscured by the fragmentation produced by years of interment. Burial 27 is a clear indication that gunshot wounds can be preserved in this burial environment. In instances when bullets are removed, bone was not impacted, or non-projectile trauma occurred, this burial environment may impede reconstruction of the perimortem trauma. All of the female burials are technically excluded as members of the Original 18 sample by virtue of biological sex. Females were not buried in plain coffins in this exhumation cohort, and no trauma related to a cause of death was observed in this group or in the subadults. One subadult, infant Burial 26, is of interest due to burial similarities to the Burial 27 gunshot wound victim.

Postmortem Environment Summary

Skeletal preservation was fair across the cohort, where "fair" means skeletal elements are identifiable, observable in context with each other, and frequently preserve indicators of age, sex, or ancestry. Teeth, the globe of the skull, and the arrangement of the remains in the burial were well preserved. Facial bones, especially the upper maxilla, were not well preserved, and neither were the thinner walled ribs, vertebrae, hand, and feet elements.

Table 7.4. Biological Profile Data from the Oaklawn Unknown Individuals by Burial Number for each excavated burial.

Burial Number	Biological Sex	Age	Ancestry	Stature	Individualizing Traits	Health Conditions	Trauma Associated w/ Cause of Death
1	Female	Older Adult	Indeterminate	Undetermined	None observed	None observed	None observed
2	Undetermined	4.5 to 5.5 years	Indeterminate	Undetermined	None observed	None observed	None observed
3	Probable Male	Early 20s	Indeterminate	68.0 +/- 2.4 inches	Gold teeth #9 and #10	LEH	None observed
4	Female and fetus	Adult	Indeterminate	63.6 +/- 2.8 inches	fetal remains in pelvis	Near term pregnancy	None observed
9	Male	Older Adult	Indeterminate	Indeterminate	None	None observed	None observed
13	Female	30s	African descent	63.4 +/- 3.6 inches	None	LEH	None observed
14	Female	Middle Aged	African descent	64.2 +/- 3.1 inches	None	None observed	None observed
15	Male	Adult	African descent	65.4 +/- 2.4 inches	Femoral bowing	LEH	None observed
16	Female	Middle Aged	African descent	67.4 +/- 3.0 inches	None	None observed	None observed
17	Probable male	Older Middle Age	Indeterminate Speculative African Ancestry	69.1 +/- 2.9 inches	None	LEH	None observed
19	Male	Middle Age	Probable African descent	70.5 +/- 2.4 inches	Gold and amalgam fillings; Probable antemortem GSW to left jaw	Probable antemortem GSW to left jaw	None observed
21	Undetermined	Prenatal Infant	Undetermined	Undetermined	None	None observed	None observed
22	Undetermined	Infant	Undetermined	Undetermined	None	None observed	None observed

Table 7.4 (cont.) Biological Profile Data from the Oaklawn Unknown Individuals by Burial Number for each excavated burial.

Burial Number	Biological Sex	Age	Ancestry	Stature	Individualizing Traits	Health Conditions	Trauma Associated w/ Cause of Death
23	Undetermined	Probable infant	Undetermined	Undetermined	None	None observed	None observed
24	Undetermined	Prenatal infant	Undetermined	Undetermined	None	None observed	None observed
26	Undetermined	Prenatal infant	Undetermined	Undetermined	None	None observed	None observed
27	Probable male	20s	Speculative African descent	67.0 +/- 2.5 inches	None	None observed	Multiple gunshot wounds
28	Female	Older Middle Age	Speculative African descent	61.5 +/- 2.2 inches	dental bridge with gold features	None observed	None observed
29	Male	Middle Age	African descent	71.6 +/- 2.5 inches	LEH	None	None observed
30	Probable male	Older Adult	Undetermined	67.2 +/- 3.0 inches	None	possible metastatic disease	None observed

Table 7.5. Select Biological Profile Data for the Male Oaklawn Unknown Individuals with Plain Coffin Status

Burial Number	Individualizing Traits	Health Conditions	Trauma Associated w/ Cause of Death	Plain Coffin (Yes or No)
3	Gold teeth #9 and #10	LEH	None observed	Yes
9	None	None observed	None observed	Yes
15	Femoral bowing	LEH	None observed	Yes
17	None	LEH	None observed	Yes
19	Probable antemortem GSW to left jaw	Probable antemortem GSW to left jaw	None observed	Yes
27	None	None observed	Multiple gunshot wounds	Yes
29	LEH	None	None observed	No
30	None	possible metastatic disease	None observed	Yes

The burials were in coffins. Decades of burial resulted in compression and fragmentation of large skeletal elements such as the skull, pelvis, and long bones, and disintegration of smaller or finer bones. If one speculates that a plain coffin also indicates a lack of embalming, then the decompositional environment is not an impediment to recovery of victims of gunshot wounds. Material artifacts were not common in association with the exhumed remains. See the archaeological report in Appendix C for details on personal effects or artifacts recovered from the burials. Safety pins, presumably to close burial shrouds, snaps, and rarely fabric, were identified in lab.

Based on the condition of remains in this exhumation cohort, continued search for Original 18 burials will produce remains that can be classified as likely Tulsa Race Massacre victims. The use of unjacketed lead projectiles during the 1800s and 1900s increases the probability of identifying a gunshot wound in the absence of the projectile. Burial 19 is an example. Evidence of thermal damage will likely only be observable in remains that are preserved in a pugilistic pose.

Tulsa Race Massacre Original 18 Victims Recovery Status

Only Burial 27 is eligible to be a possible Race Massacre victim (Tables 7.8 and 7.9). His age is younger than any of the known-age individuals buried in Oaklawn Cemetery (see Table

Table 7.6. Select Biological Profile Data for the Female Oaklawn Unknown Individuals with Plain Coffin Status

Burial Number	Biological Sex	Ancestry	Individualizing Traits	Health Conditions	Trauma Associated w/ Cause of Death	Plain Coffin (Yes or No)
1	Female	Indeterminate	None observed	None observed	None observed	No
4	Female and fetus	Indeterminate	fetal remains in pelvis	Near term pregnancy	None observed	No
13	Female	African descent	None	LEH	None observed	No
14	Female	African descent	None	None observed	None observed	No
16	Female	African descent	None	None observed	None observed	No
28	Female	Speculative African descent	dental bridge with gold features	None observed	None observed	No

Table 7.7. Select Biological Profile Data from the Subadult Oaklawn Unknown Individuals with Plain Coffin Status

Burial Number	Age	Individualizing Traits	Health Conditions	Trauma Associated w/ Cause of Death	Plain Coffin (Yes or No)
2	4.5 to 5.5 years	None observed	None observed	None observed	No
21	Prenatal Infant	None	None observed	None observed	No
22	Perinatal infant	None	None observed	None observed	Yes
23	No remains	None	None observed	None observed	Yes
24	Prenatal infant	None	None observed	None observed	Yes
26	Prenatal infant	None	None observed	None observed	Yes

Table 7.8. Male Oaklawn Unknown Individuals Assessed for Characteristics of the Original 18 Burials

Burial Number	African American Ancestry	Plain Coffin	Evidence of Projectile Trauma or Burning	Status as Possible Original 18 Burial
3	Indeterminate	Yes	None observed	Not Excluded
9	Indeterminate	Yes	None observed	Not Excluded
15	African Ancestry	Yes	None observed	Not Excluded
17	Speculative African Ancestry	Yes	None observed	Not Excluded
19	African Ancestry	Yes	None observed	Not Excluded
27	Speculative African Ancestry	Yes	Multiple gunshot wounds	Included
29	African Ancestry	No	None observed	Excluded
30	Indeterminate	Plain	None observed	Not Excluded*

* Burial 30 had a metastatic disease or similar ailment at the time of death. He is not excluded, as riot activity could be a contributing factor to the death.

Table 7.9. Oaklawn Unknown Individual(s) Suitable for Consideration as a Possible Tulsa Race Massacre Victim

Burial Number	African American Ancestry	Plain Coffin	Evidence of Projectile Trauma or Burning
27	Speculative African Ancestry	Yes	Multiple gunshot wounds

1 from Preamble). The suitable younger individuals from the death certificate data were both transported for burial (Howard Barrens and Commodore Knox). Burial 27 could be one of the males of unknown age, but this will remain speculation unless relationship data becomes available through DNA analysis.

Based on the preservation environment, a successful exhumation cohort will demonstrate multiple males with perimortem gunshot wound evidence, and buried in plain coffins. The "not excluded" males are not included in the count of possible TRM victims recovered. These individuals could have died from sequelae derived from the riot and therefore are not excluded. Recovery of multiple TRM victims will be demonstrated by recovery of multiple male decedents with evidence of gunshot wounds as a cause of death. An additional behavioral actor to our advantage is that the "Original 18" do not represent hospital deaths (except for Commodore Knox, who was transported for burial), and were not prepared for burial, so bullets will likely be retained when applicable.

Our recommendation is to continue the excavation in Section 20 Oaklawn Cemetery, covering a larger area in order to cover the dispersed burial pattern exhibited in Section 19. The preservation of coffins and skeletal remains is sufficient to allow us to expose evidence of coffin hardware without exhuming the skeletal remains. If an area of Section 20 is exposed which shows coffins stacked coffins, or bodies without coffins, then all coffins/burials would be exhumed in that area.

CHAPTER 8

SUMMARY FINDINGS AND RECOMMENDATIONS

Kary L. Stackelbeck, Ph.D. Phoebe R. Stubblefield, Ph.D. and Scott Ellsworth, Ph.D.

The invaluable work of the Tulsa Race Riot Commission brought much-needed attention to the horrible events that transpired in Greenwood in 1921. That commission laid the groundwork for the current phase of the re-opened investigation. The Physical Investigation Committee is grateful to Mayor Bynum and the City of Tulsa for making this work possible.

As a result of the extensive and intensive investigations completed in 2020 and 2021, we now know substantially more than we did previously about Oaklawn Cemetery and the process of discovering and recovering Massacre victims reportedly interred therein.

Although it may not be readily visible today, there has been substantial alteration of the Oaklawn cemetery landscape through the introduction of many layers of intentional fill—the intensity and depth of which was completely unknown prior to these investigations. These layers of fill served to cover two relict streams that are no longer visible along the western and southern sides of the cemetery, created usable, reclaimed ground for burial plots in the New Potter's Field, and covered over that portion of the cemetery to raise it to the modern ground surface. Although the relict streams are not visible today, they still carry water along their courses and have continued to saturate the soil in the southwestern section of the cemetery. This water infiltration has happened periodically since the fill was introduced and has resulted in the homogenization of the natural and cultural soil horizons—including grave shafts. This homogenization of the soil layers masked, and in some cases erased, evidence of individual grave shafts, giving the appearance of mass grave fill. These previously unknown fill layers and frequently saturated sediments help explain the challenges in obtaining reliable geophysical survey results in the southwestern portion of Oaklawn at and below one meter (3.3 feet) below the modern ground surface. These same conditions have also created unexpected challenges for obtaining clear results from soil cores and augers used to detect the kinds of mixed deposits that are normally characteristic of grave shafts.

Despite these challenges and the lack of evidence in places for individual grave shafts, the monitored excavation process led to the discovery of 34 graves in a severely under-documented portion of the cemetery. Archaeological excavation of a selection of these graves resulted in the successful documentation of one adult, male gunshot victim (Burial 27) and several other burials of archaeological interest (see Figure 5.10) to the ongoing Massacre investigation. Excavation of each burial was completed in a respectful, scientific manner that facilitated transportation of the remains to the on-site lab for detailed forensic analysis.

Forensic analysis of the excavated burials confirmed the gunshot victim, identifying evidence of two additional bullet wounds beyond that which was observed during the excavation process. Six additional adult males interred in simple wooden caskets have not yet been excluded from the possibility of being Massacre victims, but they did not present clear, discernable evidence of trauma—perhaps due to the fragmentary nature of the remains or death by some other proximate cause. Further assessment and understanding of the burial population may be yielded by the forthcoming DNA analysis.

Assuming for the sake of discussion that each of the identified adult males in simple caskets and the other burials of archaeological interest are indeed Massacre victims, we have assessed their distribution against the models presented in Chapter 3 for individual and mass graves, including that hypothesized by Clyde Snow (2001) based on his invaluable analysis of available records of known victims. The pattern we have documented is far more complicated and suggests that victims were interred in individual graves between and among non-massacre victims. This pattern was not anticipated based on any of the historical research, eyewitness accounts, or work of the previous Commission. This does not preclude the possibility of one or more traditional mass graves elsewhere in Oaklawn Cemetery—only that based on currently available data—group interments do not seem apparent in the block excavated in the summer of 2021.

Recommendations for Next Steps in the Investigation

Based on the findings to-date of the re-opened investigation, the Physical Investigation Committee issues the following recommendations:

1) Expanded excavation in the southwestern portion of Section 20 of Oaklawn Cemetery to locate additional graves of individuals demonstrating features of Massacre victims. With the information we now possess regarding the depositional context of the burials and the quality of preservation of remains and artifacts, the methods used for expanded excavations can be tailored to maximize recovery of individuals who fit the expected characteristics of known victims. Such an effort would entail planning and coordination with the City and Public Oversight Committee.

2) That the City of Tulsa and its DNA consultant inform and encourage community members to participate in the DNA analysis of the unknown adults whose samples were collected during the most recent phase of fieldwork at Oaklawn Cemetery that are the subject of this current report.

3) Completion of geoarchaeological investigations in both the Newblock Park and The Canes areas to obtain necessary data regarding possible mass graves in these locations. This work will provide important data to inform the next phases of fieldwork at either/both locations.

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