



### LW5 A Forensic Examination of 19<sup>th</sup>-Century Archaeological Remains

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The goal of this presentation is to educate attendees on the importance of forensic information in determining the identity of archaeological remains.

This presentation will impact the forensic science community by demonstrating the power of forensic examinations by multiple disciplines in narrowing the field of possible identities of unknown individuals.

In March of 2012, construction workers accidentally uncovered an unmarked grave during a renovation project at a private home in Deadwood, SD. The remains were contained within a wooden casket that was damaged by a backhoe during excavation of the reconstruction site. Because this site was part of Deadwood's first cemetery, state archivists and Deadwood Historic Preservation officials were on hand and exhumed the burial. After the exhumation of the remains, officials discovered the skeleton was nearly entirely intact. Subsequent examination of the dentition revealed many unusual features for someone from the 1870s. Preservation officials and archivists did not know the identity of this individual and decided to undertake a forensic examination of the remains in an attempt to identify this person.

Initially, the remains were sent to a forensic anthropologist, who determined that the individual was a White male who was in his late teens to early twenties at the time of death. Additionally, the forensic anthropologic analysis determined this individual was 5'6" to 5'11" in height and the skeleton revealed no indication of violent trauma. Subsequently, there were additional forensic examinations, including odontology, DNA, and elemental and isotopic analyses. Several of the forensic analyses supported and/or corroborated other forensic findings concerning the possible identity of the individual and where he lived during his lifetime.

Although this person has not been identified, the list of possible identities was initially narrowed using death records of individuals that fit the ancestry, age range, height range, and non-violent death circumstances. Subsequently, the list was narrowed based on the likely origin of distinctive, expensive dental restorations. Other dental evidence pointed to a different location later in life, but before he died in Deadwood. This information was corroborated by isotopic analyses. DNA analyses were able to extract a full profile from the skeleton and teeth. Additionally, Single Nucleotide Polymorphism (SNP) analysis was able to determine that this individual was not only a White male, but also that he was likely from Western Europe, specifically the British Isles, and had red hair and brown eyes. As a result of this inquiry, officials in South Dakota decided to produce a documentary that outlined the conclusions of the investigation. In May of 2017, South Dakota Public Broadcasting released the documentary *Deadwood Pioneer: A Face From the Past*. This presentation will discuss the forensic conclusions drawn from this investigation and what remains to be accomplished to identify this 1870's "Deadwood Pioneer."

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#### **Archaeological, Exhumation, Identification**