



A7 Dirt Matters: Case Studies in Forensic Archaeological Stratigraphy

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After attending this presentation, attendees will have a clearer understanding of the extent to which stratigraphy can be an important piece of evidence for the interpretation of forensic archaeological sites.

This presentation will impact the forensic science community by highlighting: (1) the frequent subtlety and complexity of stratigraphic information at forensic archaeological sites; and, (2) the importance of professional archaeological knowledge and experience to the successful recognition and correct interpretation of such stratigraphic cues. Further, it will emphasize that due to these two factors, forensic sites requiring mapping and excavation are best processed with the direct involvement of trained forensic archaeological professionals who have an understanding of how to record and interpret stratigraphic evidence.

Steno's Law of Superposition (1669) essentially states that older layers of soils and sediments underlie younger layers. A related principle, the Law of Cross-Cutting Relationships, states that sediment layers must necessarily be older than any deposit or intrusion that disturbs them. These are simple concepts that, when practically applied, can be extraordinarily complex. Though Steno's Laws are foundational principles of archaeology, they are not commonly associated with the forensic sciences; however, in the context of forensic archaeology, particularly when dealing with forensic scenes that have developed over an extended period of time, understanding these elementary principles of soil and sediment stratigraphy can be a crucial element of site interpretation.

The goal of this presentation is to illustrate the assertion that forensic anthropological professionals must have a strong knowledge of stratigraphic interpretation or risk being led astray and reaching incorrect conclusions during site excavation. To that end, this presentation will present six forensic archaeological excavation case studies in which astute interpretation of site stratigraphy constituted a significant line of evidence toward the successful excavation of the forensic scene and, in some cases, the recovery and identification of a missing individual. The discussed sites were excavated by Defense POW/MIA Accounting Agency teams searching for the remains of missing United States service members from three major wars. Each site is unique and necessitated a distinctive style of archaeology due to a number of factors. Soil and sediment types vary widely from one geographical location to another; no two sites are alike, and even within an individual site, formation processes can vary extensively from one area to another. Sites presented include those with very deep stratigraphic profiles, such as aircraft crash craters, others with little to no stratigraphic development, such as disturbed surface scatters, and unusual sites where the depositional environment is unclear or highly complex, such as ice fields or glaciers. Despite these differences, all of these sites share the distinctive aspect of having formed over long periods of time (typically 45 to 75 years). The comparatively protracted time depth of these sites often means more complex site formation processes are at work than would typically be found on more recent forensic archaeological sites. Relevant site formation processes, such as erosion, bioturbation, fluvial deposition, and human scavenging activities, will be examined.

A clear understanding of stratigraphy and the archaeological methods used to detect, interpret, and record formation and disturbance patterns in layers of soil and sediment is one of the many things that sets apart archaeological professionals from untrained amateurs. This is one of the primary reasons it is so important to have forensic sites excavated by experienced forensic archaeologists rather than by well-meaning but untrained and inexperienced non-archaeological professionals. An ability to detect, interpret, and record stratigraphy is a fundamental skill used by forensic archaeologists, and one that must be honed through a variety of field experiences; it is nearly impossible to learn in a classroom setting. Stratigraphy tells a story that can only be read through careful excavation.

Forensic Archaeology, Stratigraphy, Defense POW/MIA Accounting Age