



E50 Differential Taphonomic Effects in a Recently Discovered World War II Cemetery

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After attending this presentation, attendees will better understand the unique postmortem taphonomic patterns of a coral atoll burial environment on human remains and material evidence from a recently discovered WWII cemetery (minimum number of individuals currently = 48).

This presentation will impact the forensic science community by identifying and describing unusual taphonomic effects on human remains and associated material evidence from a 72-year-old WWII context. Additionally, this presentation will contribute to the overall knowledge of the forensic community and current volume of data that documents and describes the effects of taphonomic variables on human remains and possible material evidence *in situ*, as well as its interpretation in a laboratory environment.

Specifically, attendees will view and learn about previously unseen and undocumented taphonomic effects of decomposing WWII military equipment (projectiles, military-issued equipment, personal gear, and military ordnance) in combination with environmental factors such as ground water fluctuations, sediment types, and salinity on human remains. The combined effects of materials interred with individuals and the surrounding environment has resulted in atypical effects on the human remains that might not be recognized by blind analysis alone.

Description of the site and sample: During the Second World War, the Battle of Tarawa was a costly victory for the United States Marine Corps. More than 1,200 United States Marines and sailors were killed in action during a three-day conflict. The remains were hastily buried in post-battle cemeteries and eventually lost to time and memory. As a result, approximately 500 of these Marines were deemed “unrecoverable.” Seventy-two years later, one of the missing cemeteries was discovered and systematically excavated by a non-governmental organization called History Flight Inc. Efforts led to the repatriation of approximately 48 lost United States servicemen as of July 26, 2016.

The effects of the coral atoll environment contributed to differential preservation of human remains. In particular, the association of metals and materials found on military-issue equipment (such as “782 gear” which includes: snaps, fasteners, eyelets, canteens, helmets, rubberized canvas ponchos, and boots), ammunition and ordnance (M1 Garand clips, Browning Automatic Rifle (BAR) magazines, hand grenades, etc.), personal effects (rings, ID tags, religious medallions, cigarettes, lighters, pocket knives, coins, books), and miscellaneous objects such as post-battle trash produced a variety of previously undocumented microenvironments. Combined with natural environmental processes, such as a highly fluctuating water table, the absence of scavenger activity, and minimal postmortem disturbances, the burial context from this case presents unprecedented and valuable information for the forensic community.

Taphonomy, World War II, Battle of Tarawa