



E114 Trauma and/or Taphonomy? Analysis of Peri-Mortem Trauma Observed in a Post-Battle World War II Cemetery and the Complications of Taphonomy in Discerning Trauma

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After attending this presentation, attendees will better understand a variety of WWII combat traumas viewed in a recently discovered United States WWII cemetery (minimum number of individuals currently = 48). Attendees will also learn about an unusual type of taphonomy that mimics peri-mortem trauma and possible microenvironments contributing to these postmortem changes.

This presentation will impact the forensic science community by providing an unprecedented sample of WWII combat-related traumas that includes a first look at distinct and unfamiliar taphonomic factors and their effects on the preservation of human remains.

This taphonomic process is undocumented (according to research) and could be valuable to the forensic community as it represents a previously unknown condition that resembles the effects of peri-mortem thermal alteration. Attendees will learn of the modern battlefield peri-mortem traumas documented during the analysis as well as how to recognize differential taphonomy that may obscure or mimic trauma through the use of skillful field techniques.

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, hastily buried in post-battle cemeteries, and lost to time. 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. Their efforts led to the repatriation of 48 lost United States servicemen from one locality as of July 26, 2016. It is from this locality (often referred to as Cemetery 27 in various documentation) that the information was gathered.

A variety of combat traumas were observed in the recovered burial population including, but not limited to, peri-mortem gunshot wounds, sharp force trauma, peri-mortem thermal alteration, blunt force trauma, and a variety of peri-mortem fractures. Atypical traumas, such as that resulting from bomb fragmentation (aka “shrapnel”), were observed as well, but do not necessarily fall into any of the above categories. While the majority of the skeletal trauma is clear and reasonably distinct, a newly documented taphonomic effect was found to mimic peri-mortem thermal alteration. This taphonomic effect is the result of direct contact between skeletal materials and the military-issue rubberized canvas poncho with which many individuals in this cemetery were interred. In addition, this unusual taphonomic effect created by contact with the poncho was detrimental to the preservation of human remains. Skeletal elements contained within, covered with, or placed on top of the rubberized canvas ponchos are heavily fragmented, friable (often disintegrating with the slightest touch), and discolored, compared to skeletal remains without contact with this material.

Trauma, WWII, Battle of Tarawa