



Physical Anthropology Section – 2007

H75 Decomposition in a Mass Grave and the Implications for Post Mortem Interval Estimates

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After attending this presentation, attendees will understand the processes that create the unique decomposition pattern observed in mass burials and how they differ from single burials as well as information regarding the effect that disturbance has on decomposition within burials.

This presentation will impact the forensic community and/or humanity by demonstrating information that aids in estimating with greater accuracy post mortem intervals from mass burials.

The identification of human remains and estimation of post mortem interval (PMI) are very important in any forensic case. In the investigation of mass graves complications arise, as decomposition within a mass burial does not follow the same pattern as a single burial. Individuals within a mass burial have been anecdotally noted to decompose at different rates depending on where they are positioned within the mass (Haglund 2002). This introduces error into standard PMI estimation methods. Currently, the variables involved in this phenomenon and the resulting deviation from predicted decomposition patterns have not been understood or researched.

The experimental research was undertaken at Newton Rigg, Penrith, UK for 70 days. In accordance with DEFRA regulations, rabbit carcasses obtained from standard pest control measures were buried, and examined at varying intervals. The study compared decomposition patterns between and within mass graves as well as between mass and single graves. Twenty-five rabbit carcasses were buried within two mass burials of nine each, and seven single burials. Carcass weight, carcass temperature, soil temperature (at both centre and periphery of the mass graves) and soil pH data were collected throughout the study and decomposition scores were assigned to each carcass. Disturbed and undisturbed burials were used to compare the effects disturbance had on subsequent analyses. One mass grave was exhumed and observed every 10 days; the other mass grave was exhumed only on day 70. One single burial was exhumed every 10 days providing controls.

Results confirm the anecdotal evidence that bodies on the periphery of a mass grave decompose at a faster rate than those in the central mass. Preliminary results indicate that these peripheral bodies also decompose at a somewhat faster rate than singly buried individuals; in contrast, the decomposition rate of the centrally located bodies compares favorably with that of singly buried remains. Disturbance does appear to affect the rate of decomposition, as decomposition was at an earlier stage in the undisturbed burial and insect activity was notably greater in the disturbed burial where flies had access to the carcasses every ten days during their exhumation for data collection purposes. The rise in pH levels for both single and mass graves closely follows that predicted by Vass et al (1992).

Mass Graves, Taphonomy, Disturbance