

EFFECTS OF LIME ON THE DECOMPOSITION RATE OF BURIED REMAINS

Heather A. Thew

ABSTRACT of a Master's Thesis in Human Biology at the University of Indianapolis
filed June 2000

Dr. Stephen P. Nawrocki, Chair
Dr. Christopher W. Schmidt, Reader

Of the many factors that affect buried remains, one that is particularly pertinent to forensic studies is the inclusion of lime in a burial. It would seem that assailants believe that lime accelerates the decomposition of soft tissues in buried remains. However, observations by forensic investigators suggest that lime actually tends to slow the decomposition of buried remains. Despite anecdotal information, the effect of lime on the decomposition of remains is not clearly understood. A systematic study of the role of lime in soft tissue preservation and how it interacts with other environmental variables is needed.

The research described in this thesis serves as a pilot study of soft tissue decomposition in burials. This study was conducted on a farm in northwestern Indiana between 1995 and 1998 and examined three variables influential to decomposition: duration of burial, depth of remains below the surface, and the presence or absence of lime. Six sets of juvenile pigs were buried at different depths and for different interment periods in both limed and unlimed (control) pits. Pits 1 and 2 were deep burials interred for thirty months. Pits 3 and 4 were shallow burials interred for six months. Pits 5 and 6 were deep burials interred for six months.

Upon excavation, each pig was given a numeric score based on the degree of decomposition it exhibited. These scores served as the dependent variable in an analysis of variance, with the independent categorical variables being time elapsed, depth, and lime inclusion. Extensive qualitative descriptions also proved essential to understanding the results. The soils around the remains and on the surface of the pits were also analyzed for changes in pH values.

The results show that lime does not significantly slow the rate of decomposition of buried remains. The greatest difference in preservation between the limed and non-limed (control) burials occurred in shallow, six-month pits (Pits 3 and 4). Although significant, the differences between the deep, six-month pits (Pits 5 and 6) and deep, thirty-month pits (Pits 1 and 2) were less impressive. It appears that the preserving qualities of lime decrease over time and are not as influential at greater depths. With this data, forensic investigators may be able to assess the postmortem interval for a limed burial more accurately. In addition, results of the soil pH tests indicate that a shallow limed burial may be detectable because of a difference in surface soil pH.

Copyright © 2000 by Heather A. Thew

The author grants permission for this document to be copied and distributed for personal and educational use as long as proper citation is given. Commercial use of this document is forbidden without the prior consent of the author.

Suggested citation of this document: Thew H (2000). Effects of Lime on the Decomposition Rate of Buried Remains (abstract). University of Indianapolis Archeology & Forensics Laboratory (<http://archlab.uindy.edu>).

Last update 6-30-06