

(2009)

AN INVESTIGATION INTO THE PRESERVATION OF  
SAW MARKS AND CUT MARKS ON BURNT BONE

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Abstract

The following experiment was conducted in an attempt to better comprehend the preservation and possible interpretation of tool marks in bone after burning at different temperatures. To begin, twenty-four defleshed specimens from six pig (*Sus scrofa*) forelimbs were cut using three distinct saws and a knife for defleshing. These specimens were weighed, photographed micro- and macroscopically, analyzed for saw marks and cut marks and burnt or cremated in one of four ways: an outdoor fire ranging in temperature from 277 to 770 degrees Celsius (see table 3.1) or in a kiln set to hold at 600, 800, or 1000 degrees Celsius. Following burning, the specimens were again weighed, photographed, and analyzed and extensive notes were made of heat-induced changes such as color and friability.

It was determined that, in general, the tool marks did progressively diminish as the burning temperature increased. However, the retention of saw marks was adequate for some degree of accurate and useful analysis even at temperatures as high as 1000 degrees. In several cases tool marks were rendered more visible after burning due to the elimination of soft tissue and possibly a combination of shrinkage, carbonization and calcination intensifying as opposed to diminishing certain features.

The determination of blade width from false starts may be rendered impossible in specimens cremated at 800 degrees Celsius or higher due to shrinkage. Bones that are charred present their own particular problem—namely, the striations are often more difficult to see because of blackening, whereas calcined bones present a much cleaner picture. As hypothesized at the outset, the saw marks are more noticeably altered after being burned at higher temperatures, but at least some form of analyses are still feasible even after cremation at 1000 degrees.