



Engineering Sciences Section - 2016

D1 Richard III Discovered: The King's Remains

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After attending this presentation, attendees will understand how modern forensic techniques used for tool mark analysis can be applied to determining how injuries were sustained to a 500-year-old skeleton.

This presentation will impact the forensic science community by demonstrating how techniques from forensic engineering science, forensic pathology, and archaeology have been combined to understand the wounds and weapons used to cause the injuries found on the King's skeleton.

Richard III was King of England between 1483 and 1485. In 1485, King Richard III rode with his army from Leicester to fight against Henry Tudor, later crowned King Henry VII of England. The battle was fought at Bosworth Field approximately 20 miles from Leicester. Bosworth was a short battle lasting approximately two hours. The battle reached its end when Richard was killed.

Of all the monarchs of England since 839, Richard III was the only one whose final resting place was unknown. One legend had it that his body had been thrown into the River Soar and was lost forever. Other tales told of a church ruin with a plaque on a column claiming to mark his grave.

In 2012, the University of Leicester was given permission by Leicester City Council to excavate a site — a council car park that, from scrutiny of ancient maps, could well be the site of the Greyfriars church where Richard may have been interred.

Despite limited funding and more than 500 years of lost records, the very first trench dug in the car park exposed a skeleton. Two further trenches revealed the outline of the ancient church and confirmed that the skeleton was buried in the choir of the church, a mark of high status. Moreover, the skeleton showed pronounced scoliosis, a curvature of the spine, and evidence of battle injuries.

Carbon dating revealed that the skeleton was of the correct age to be Richard III. Mitochondrial DNA testing and a Bayesian statistical analysis demonstrated a conservative estimate of 99.999% confidence that the skeleton was indeed that of Richard III. The results of the find were announced by the University of Leicester to worldwide media coverage in February 2013. In the United States, this find is often referred to as “the King in the Car Park.”

There were 11 injuries to the skeleton: 9 to the skull, 1 to the rib, and 1 to the pelvis. Ten of the injuries were considered peri-mortem while the pelvis injury was most likely a postmortem injury. Three of the injuries to the skull showed evidence of striations from tool marks and tool mark analysis determined that these marks were likely made by the same blade.

This presentation will exhibit the computed tomography and micro-computed tomography images that were taken from the skeleton and explain how the injuries relate to weapons from the period.

This presentation will be relevant to forensic engineers, pathologists, and anthropologists who have an interest in tool mark analysis and the relationship between tool marks and weapons.

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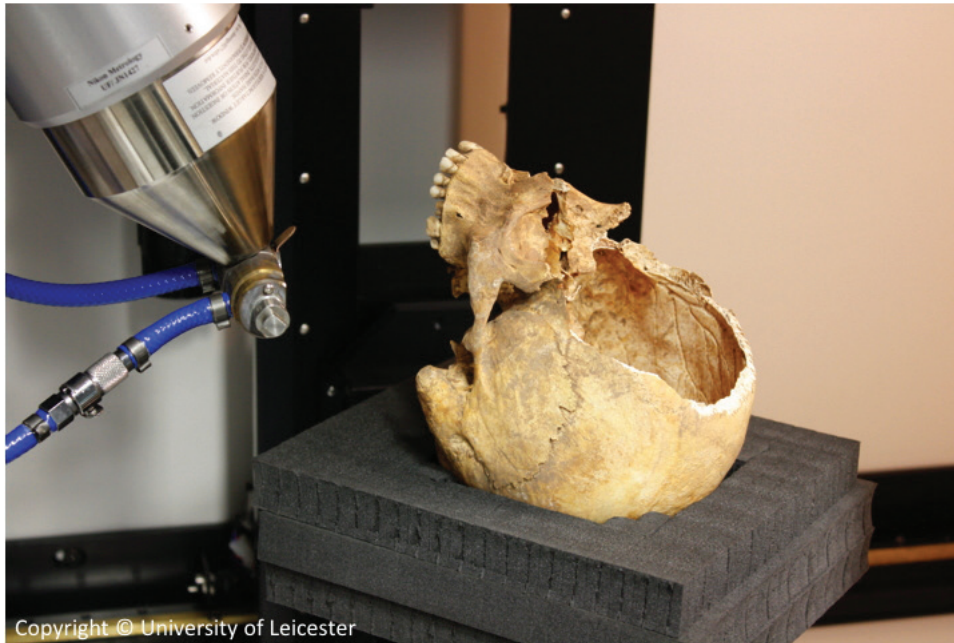


Figure 1: The skull of Richard III mounted in the micro-computed X-ray tomography scanner.

Richard III, Microcomputed X-Ray Tomography, Tool Marks