

The Hulton Abbey Skeletal Digitisation Project [HASDiP].

Professor John Cassella [1] Dr Mary Lewis[2],
Mr Roger Brown [3] and Mr Paul Lucking[4]

[1] Department of Forensic Science, Faculty of Science, Staffordshire University
[2] Department of Archaeology, School of Human and Environmental Sciences, Reading University,
[3] Faculty of Arts, Media and Design, Staffordshire University
[4] Entertainment Technology, Faculty of Computing, Engineering and Technology, Staffordshire University

Introduction

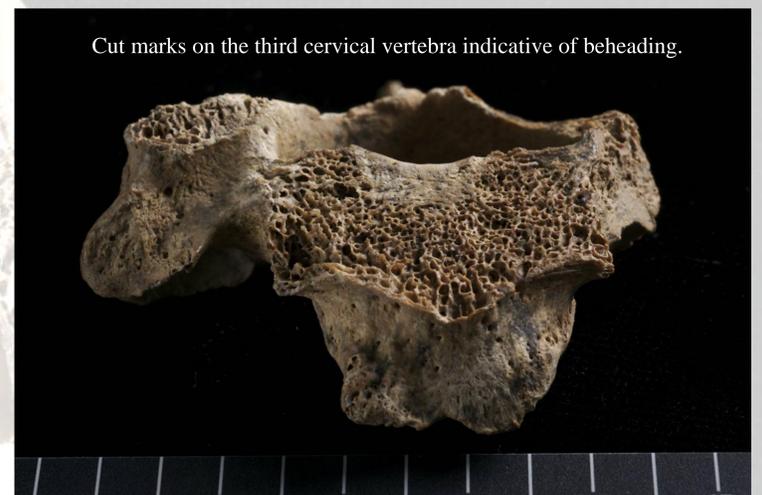
The aim of this project was to produce a digitised record/resources from skeletal material recovered from Hulton Abbey in Stoke-on-Trent, Staffordshire. Whilst the initial aim of this project was to produce digitised resources which will be actively used for forensic science teaching at Staffordshire University and Reading University, this resource can equally and readily be adopted by other organisations and Institutions. In addition, due to the interdisciplinary interest in this work, the potential for re-purposing and re-use of these digitised resources is enormous. Due to the anatomical nature of the skeletal excavations there is potential for use in anthropological and biological (e.g. disease) studies and there is also historical and religious, sociological and cultural applications as well as in photographic studies, computing and e-learning technologies.

Due to its potential for educational use in forensic science the Physical Sciences Centre supported Staffordshire University in development of the digitised resources. As part of the project, extensive dissemination to other disciplines/subjects about the methodology of making and using such digital resources of such digital resources has been undertaken.

The paper by Lewis (2008) has described the first known case of a skeleton displaying trauma associated with the practice of quartering in medieval England. Lewis's paper "attempts to identify the remains and place them within their political and "historical context". The distribution and nature of the lesions is not consistent with battle trauma or evisceration during 'division' of the body, but fits with the historical accounts surrounding the execution of Hugh de Despenser. The date of the remains, from the founding of the Abbey (AD 1219) to the end of the 95 % confidence interval provided by the ¹⁴C dates (AD 1385), fits with the period of his death and his age and sex is consistent with the osteological evidence. Probably most seductive in the identification of this body is the account of the remains buried at Tewkesbury Abbey, as these are precisely the skeletal elements missing from this skeleton. However, such historical equations can never be completely proved. Despenser is said to have been buried at Tewkesbury and the matter must remain open unless and until the remains in the vault at Tewkesbury become available for analysis. Meanwhile we can say with more confidence that this was the skeleton of an execution victim, and the death of Hugh Despenser provides an analogy for the pathology observed."



Cut marks to the left clavicle



Cut marks on the third cervical vertebra indicative of beheading.

Materials and Methods

Photography Protocol

Camera: Nikon D80, Lens: 60mm f2.8 AF Micro-Nikkor D, Nikkor DX E GD 18mm-135mm AF-S Zoom (whole skeleton only)

File format: Nikon NEF-RAW, Custom ICC profile: Adobe RGB 1998

Release: Nikon MC-DC1 remote trigger, Auto white balance (Nikon default setting) ISO 100

Lighting: Bowens Gemini 500 Digital Monolight electronic flash units, with standard softbox, umbrella and stands and supplementary light shaping tools and reflectors of my own devising. Metering: Sekonic F308 hand meter.

Computer: Apple MacBook Pro 15" laptop & Aperture 1.5 image management software profiled @ 1.8 gamma. Camera operation fully manual in 'M' mode with manual focusing and remote tethered triggering, tripod mounted.

Lens standardised to the 60mm f2.8 AF Micro-Nikkor D for maximum resolution and sharpness of the image. Optimised for macro photography, this lens proved to be of sufficient focal length to produce images free of perspective distortion at the ca.1:1 in camera magnifications used and a reasonable lens to subject working distance that allowed lighting to be applied to the artifacts. Lens aperture standardised to f22 to optimise depth of field and minimise internal lens flare and image degradation. The Nikkor DX E GD 18mm-135mm zoom lens used only for images of the whole skeleton remains, where a wider angle of view was required. *Contre-jour* lighting was used to best bring out the details of the different types of skeletal trauma to be seen on the bones. This style of lighting and the high in camera magnifications revealed further traumas either very difficult to see or not visible to the naked eye. Exposures were measured with a separate hand held meter and bracketed in 1/10th stop increments in a 5 or 7 incremental step using the stable electronic switching available on the Bowens Gemini Digital lighting heads. The bracketing ensured a full dynamic range of exposure was captured for each image. All the photographs were downloaded to and data tagged in Apple Aperture 1.5 image management software.

Computing: Adobe Director was used with plug-in technology from INM (Integrated New Media) to build a cross platform capable delivery system. This allowed access to high quality document data through a database driven architecture. Due to the high quality nature of the document data media delivery is facilitated on a DVD-Rom. Steps were taken to ensure a minimal amount of manipulation to the original photographic image data to ensure that their quality was not compromised, followed by the process of conversion into searchable Acrobat documents that can be protected to prevent access outside the main interface.

Discussion

This pilot project has shown how such resources may be developed for teaching and research. The power of this project will be the large amount of skeletal material that may be digitally archived for future use; the searchable database will allow comparative studies to be performed. Ideally, all of those educators/researchers who utilise this digitised resource for their own purposes will have set learning outcomes which generically could include:

Understand and undertake the methods of producing accurate archaeological/anatomical drawings/photography

Understand and apply the requirements of archaeological/anatomical recording procedures.

In addition, the following transferable skills could be developed and enhanced:

Critical thinking

Team working and independent working

Communication skills, written and oral

Observational skills

Problem solving skills

Recognition, description and reporting skills

Accuracy in working and reporting

Analytical and practical skills

Numerical skills.

Enhanced visual literacy in the making, understanding and interpretation of forensic photography.

Lewis ME (2008) A Traitor's Death: the identity of a drawn, hanged and quartered man from Hulton Abbey Staffordshire. *Antiquity* 82: 113-124

