SEARCHING FOR A STANDARD: THE IMPACT THAT METHOD SELECTION HAS ON EVIDENCE RECOVERY IN FORENSIC ARCHAEOLOGICAL INVESTIGATIONS

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Overview

• Current research in forensic archaeology.
• Lack of standardisation in forensic archaeology.
• Admissibility of forensic archaeological evidence.
• The search for standardisation in forensic archaeology.
• Experimental research and results.
• Impact for forensic archaeology.
• Forensic archaeology vs. admissibility regulations.
• Recommendations.
• References.
• Acknowledgements.
Forensic Archaeology

• A sub-discipline of archaeology that involves the application of archaeological techniques and theories to assist in the process of a forensic investigation by providing evidence for use in legal proceedings.
Current research in forensic archaeology

- Publications on the development of the field and the use of its methodological approaches.
- Particular focus on the archaeological excavation of single and mass burials.
Recommended methodological approaches

- Great variation in recommended approaches -
  - Arbitrary Excavation
  - Block Excavation
  - Demirant Excavation
  - Quadrant Excavation
  - Vertical Slice Excavation
  - Stratigraphic Excavation

- Extensive variation within individual approaches also.
Block Excavation Method
Stage 1

The ‘grave block’ is placed into an evidence bag and shock-proof container. It is then transported to the laboratory for in-lab excavation.
Demirant (B) Excavation Method

Leave a baulk in place

Second Half

First Half
Quadrant Excavation Method
Stage 1

Stage 2

Stage 3

Stage 4

Stage 5

Stage 6

Stage 7

Stage 8

Stage 9

Stage 10

Stage 11

Stage 12

Stage 13

Stage 14

Stage 15

Stage 16

Stage 17

Stage 18

Alternative approach
Vertical Slice Excavation Method
Stratigraphic Excavation Method
Lack of Standardisation

- Inherited their techniques, principles, theories and practices from the wider and long-established sub-discipline of field archaeology.
Source of the problem

• Approaches to archaeological excavation and recording vary greatly from country to country.

• Archaeologists from North America, working primarily on prehistoric burial sites would advocate an Arbitrary Excavation method and a Unit Level recording method.

• Archaeologists from the United Kingdom, working primarily on urban cemeteries, would advocate a Stratigraphic Excavation method and a Single Context recording method.
The issue of admissibility

- Primary aim of forensic archaeological investigations is the provision of evidence to legal proceedings.

- Must meet admissibility regulation requirements –

<table>
<thead>
<tr>
<th>Admissibility regulations</th>
<th>Satisfied this requirement?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Empirical testing</td>
<td>☒</td>
</tr>
<tr>
<td>2. Peer review</td>
<td>☺</td>
</tr>
<tr>
<td>3. Known error rates</td>
<td>☒</td>
</tr>
<tr>
<td>4. Standards controlling their operation</td>
<td>☻</td>
</tr>
<tr>
<td>5. Widely accepted amongst the academic community from which they originate</td>
<td>☻</td>
</tr>
</tbody>
</table>
How has forensic archaeology avoided criticism?

• Law Commission (2011: 12-13) –

“expert evidence is often trusted like no other category of evidence”

“cross-examining advocates tend not to probe, test or challenge the underlying basis of an expert’s opinion evidence”

“do not feel confident or equipped to challenge the material underpinning the expert opinion”
Consequences for forensic archaeology

• Admissibility regulations are now being increasingly enforced.

• Practitioners comforted by the assumption that widespread usage and acceptance correlated with reliability.

• No internationally accepted protocol for forensic archaeological investigations exists.

• Implies a lack of professionalism.
The search for standardisation

• Evis, L.H., 2014. *Digging the Dirt - A Comparative Analysis of Excavation Methods and Recording Systems in Relation to their Applications in Forensic Archaeology.* Bournemouth: Bournemouth University. [Accessible from: http://eprints.bournemouth.ac.uk/21487/].

• Explored whether method selection impacted evidence recovery.

• Establish a protocol for forensic archaeological investigations.
Archaeological method usage

- Archaeologists, archaeological companies, organisations, institutions, museums and libraries were contacted in the United Kingdom, Ireland, Australasia and North America.

![Pie chart showing the distribution of different excavation methods.]

- Excavation will proceed using the Arbitrary Excavation method (n=64)
- Excavation will proceed using the Stratigraphic Excavation method (n=121)
- Excavation will proceed using either the Demirant or Quadrant Excavation method (n=105)

(Evis 2014:58)
Experimental design
Material evidence selection
Layers evidence selection
Participant selection

- Gained by inviting archaeological organisations to participate.
Results

• 50 individuals participated.

• 40 of the participants had archaeological training.

• 10 of the participants acted as controls. They had never received any archaeological training and had no archaeological knowledge whatsoever.

• Freedom to choose what excavation method and recording system to use.

• Freedom to choose what tools to use.
Material evidence results

<table>
<thead>
<tr>
<th>Excavation Type</th>
<th>Identified</th>
<th>Not Identified</th>
<th>In Situ</th>
<th>Not In Situ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratigraphic Excavation</td>
<td>71.11%</td>
<td>28.89%</td>
<td>81.25%</td>
<td>18.75%</td>
</tr>
<tr>
<td>Demirant Excavation</td>
<td>73.33%</td>
<td>26.67%</td>
<td>87.88%</td>
<td>12.12%</td>
</tr>
<tr>
<td>Quadrant Excavation</td>
<td>71.11%</td>
<td>28.89%</td>
<td>93.75%</td>
<td>6.25%</td>
</tr>
<tr>
<td>Arbitrary Excavation</td>
<td>51.11%</td>
<td>48.89%</td>
<td>95.65%</td>
<td>4.35%</td>
</tr>
<tr>
<td>Control Excavation</td>
<td>66.67%</td>
<td>33.33%</td>
<td>71.67%</td>
<td>28.33%</td>
</tr>
</tbody>
</table>
# Identification of layers

<table>
<thead>
<tr>
<th></th>
<th>Stratigraphic Excavation</th>
<th>Demirant Excavation</th>
<th>Quadrant Excavation</th>
<th>Arbitrary Excavation</th>
<th>Control Excavation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contexts not identified</td>
<td>5.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>31.00%</td>
<td>26.00%</td>
</tr>
<tr>
<td>Contexts identified</td>
<td>95.00%</td>
<td>98.00%</td>
<td>98.00%</td>
<td>69.00%</td>
<td>74.00%</td>
</tr>
</tbody>
</table>
Overall results

<table>
<thead>
<tr>
<th>Excavation method at its best</th>
<th>Excavation method at its worst</th>
<th>Average result for the excavation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratigraphic excavation</td>
<td>100.00%</td>
<td>75.83%</td>
</tr>
<tr>
<td>Demirant excavation</td>
<td>91.67%</td>
<td>78.75%</td>
</tr>
<tr>
<td>Quadrant excavation</td>
<td>91.67%</td>
<td>75.83%</td>
</tr>
<tr>
<td>Arbitrary excavation</td>
<td>50.00%</td>
<td>39.58%</td>
</tr>
<tr>
<td>Control excavation</td>
<td>66.67%</td>
<td>52.50%</td>
</tr>
</tbody>
</table>
Impact of experience
Testing practitioners

• Experience is not a sufficiently reliable criterion upon which to judge an archaeologist’s ability to excavate and record clandestine burials.

• Practitioners should participate in a forensic archaeology skills test. Repeated every 5 years to maintain standards.

• Competency tests exist already in forensic anthropology – American Board of Forensic Anthropology.
Forensic archaeology vs. admissibility regulations


- *Error rates cannot* be established for the discipline of forensic archaeology.
  
  a) Great variability in how single clandestine graves are constructed and what they may contain.

  b) Great variability in recovery rates between archaeologists.

- Experimental results can be used to indicate how each of the methods perform against one another in a controlled setting.
Recommendations

1. When conducting forensic archaeological investigations the Quadrant Excavation method should be used. If this approach is unable to be utilised the Demirant Excavation method or the Stratigraphic Excavation method should be used. Any deviation from these recommended approaches should be justified in the forensic archaeologist’s report.

2. A forensic archaeology skills test should be created and an overseeing testing body established.

3. The applicability of the Quadrant, Demirant and Stratigraphic Excavation methods and their associated recording systems should be tested on mass graves.


Theoretical assistance:
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