

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

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- Ian Hanson, International Commission on Missing Persons.

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.



"Three bucks, and that's my final offer.
Three bucks to keep my mouth shut."

Recommended methodological approaches

- Great variation in recommended approaches -

Arbitrary Excavation

Block Excavation

Demirant Excavation

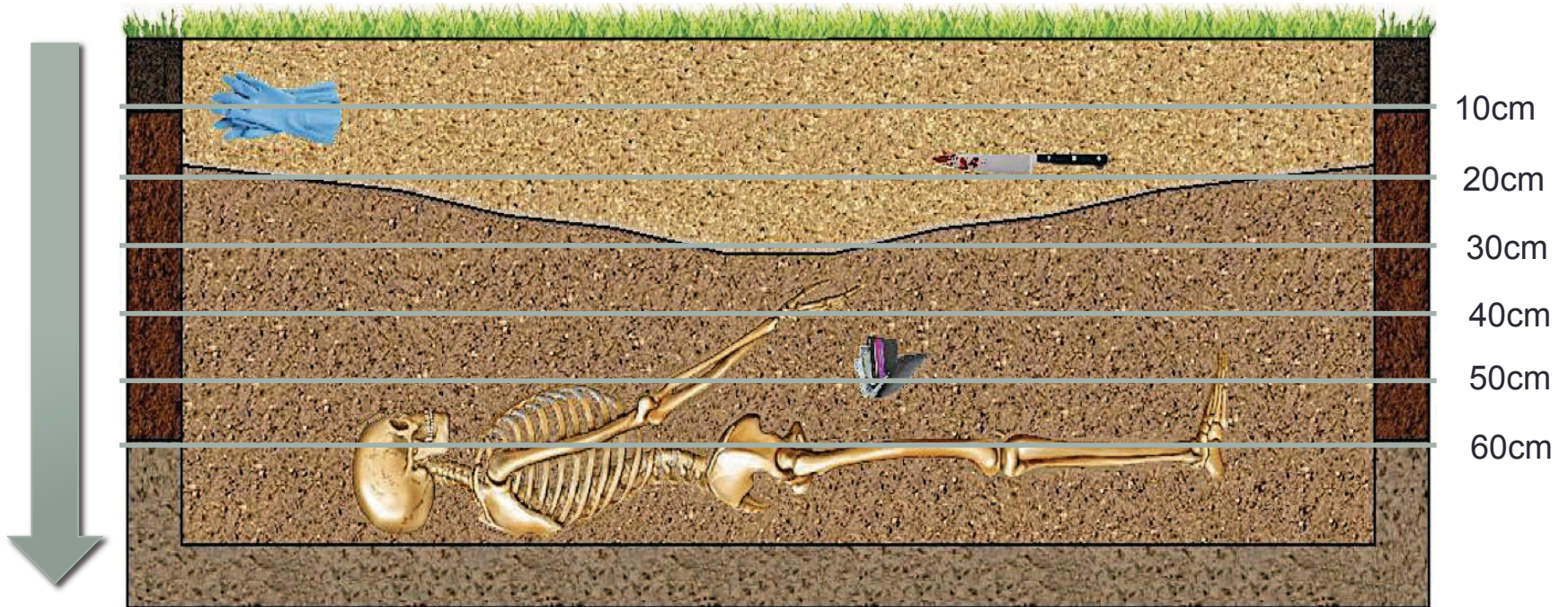
Quadrant Excavation

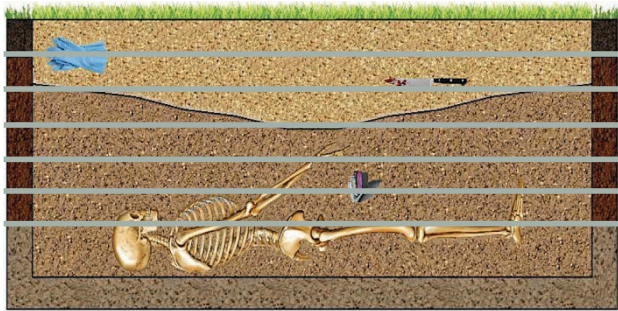
Vertical Slice Excavation

Stratigraphic Excavation

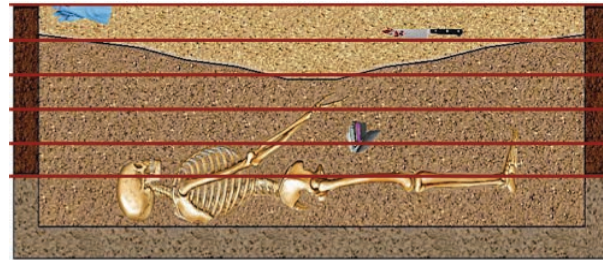
- Extensive variation within individual approaches also.

Arbitrary Excavation Method

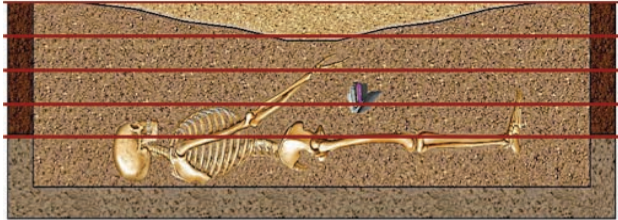




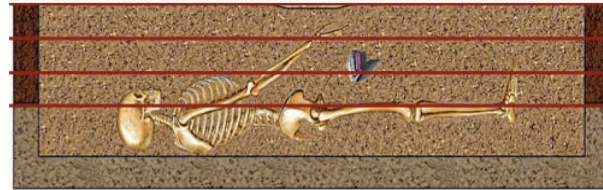
10cm



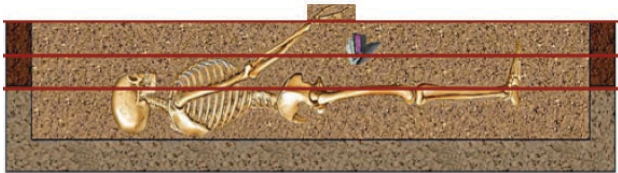
20cm



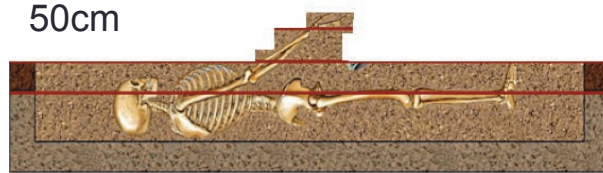
30cm



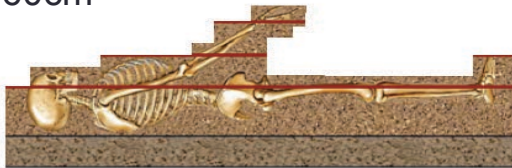
40cm



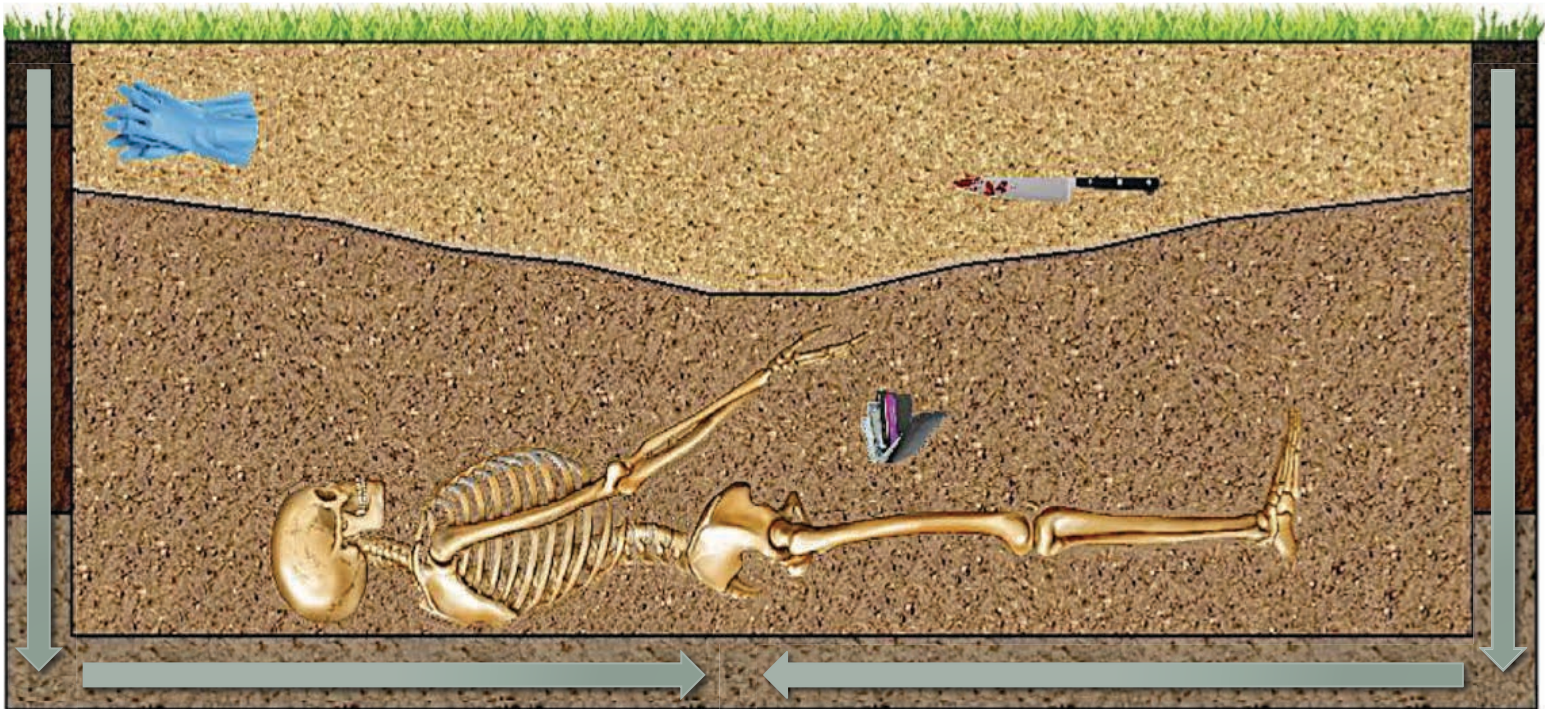
50cm

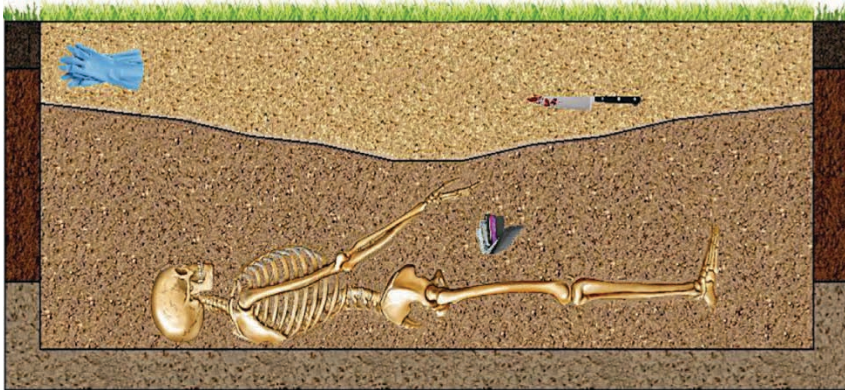


60cm

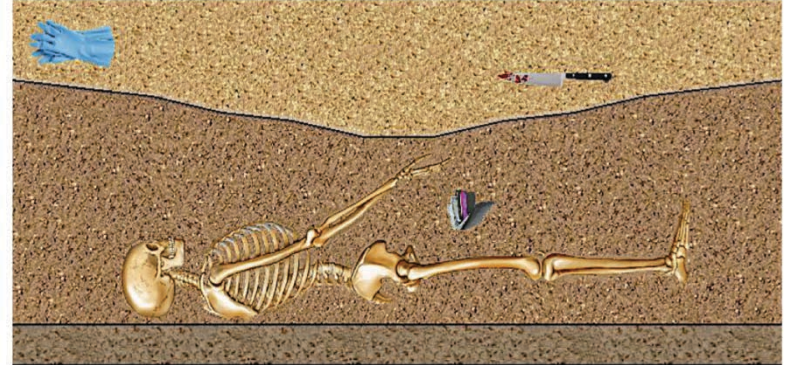


Block Excavation Method

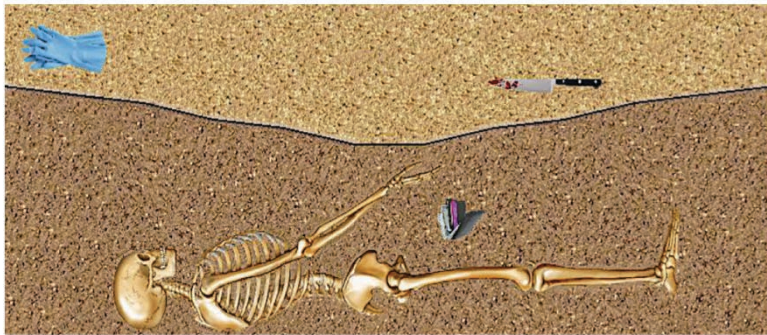




Stage 1



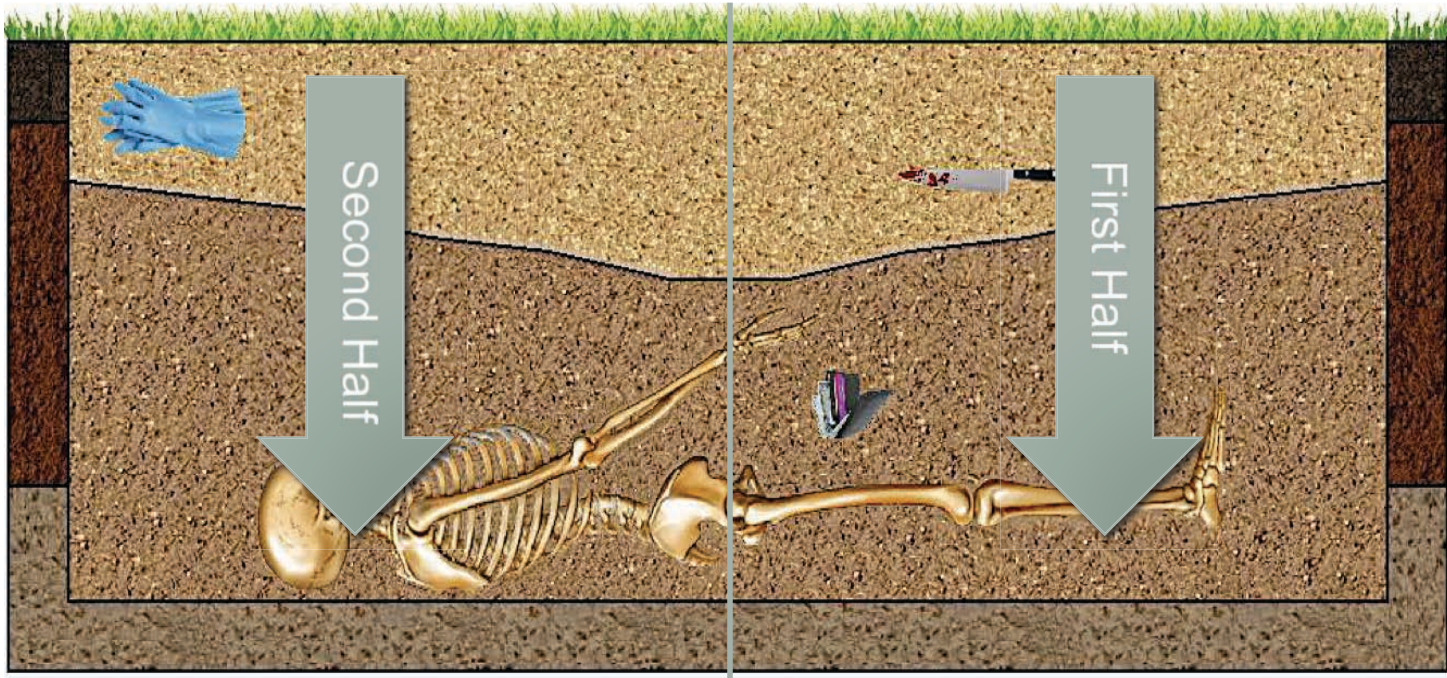
Stage 2



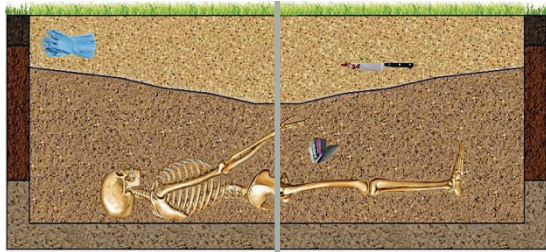
Stage 3

The 'grave block' is placed into an evidence bag and shock-proof container. It is then transported to the laboratory for in-lab excavation.

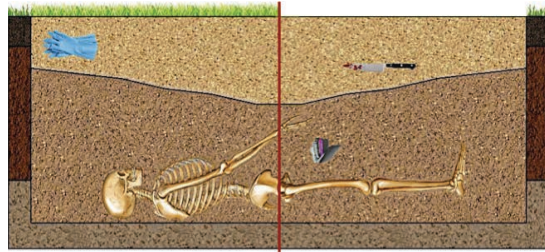
Demirant (A) Excavation Method



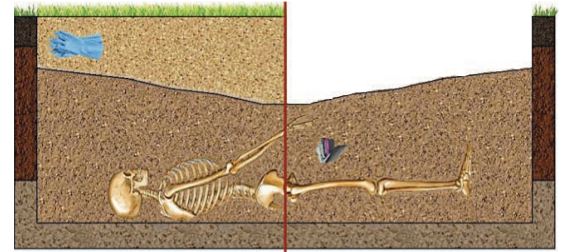
Stage 1



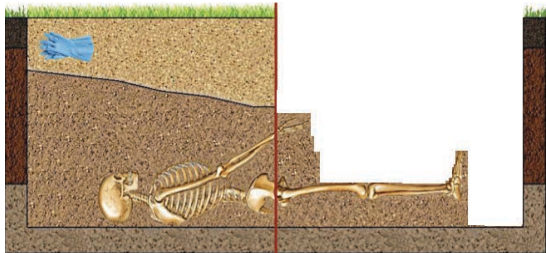
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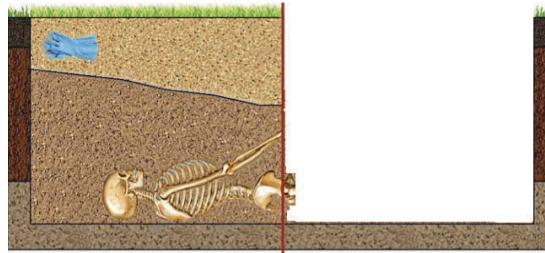
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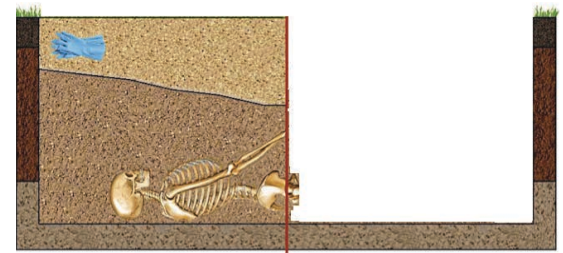
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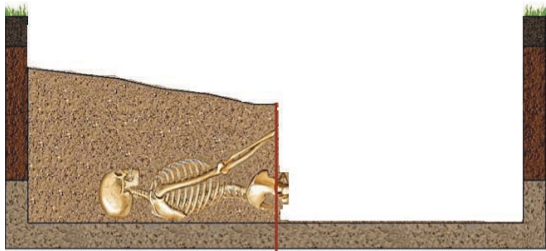
Stage 5



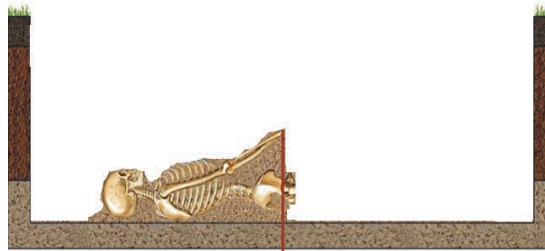
Stage 6



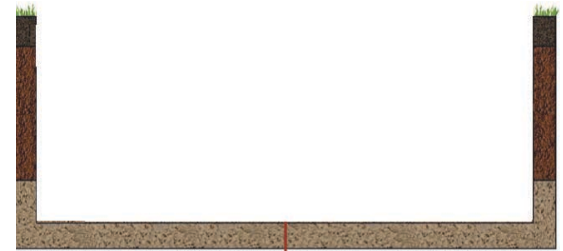
Stage 7



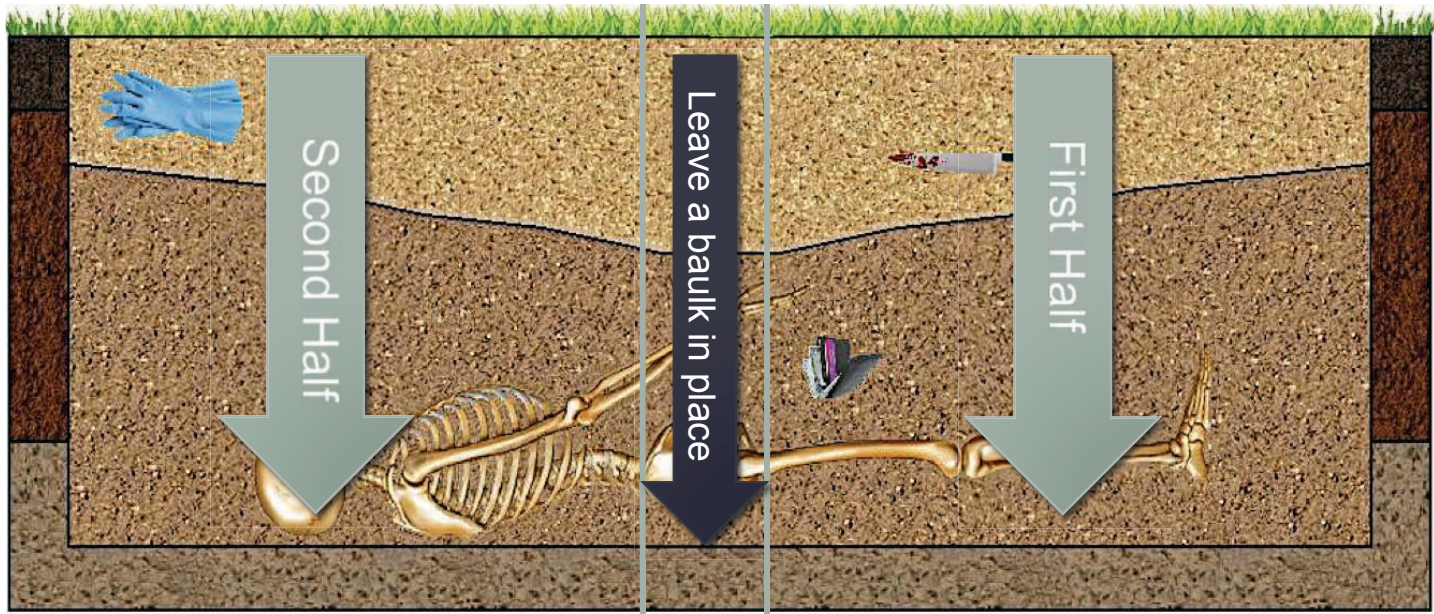
Stage 8



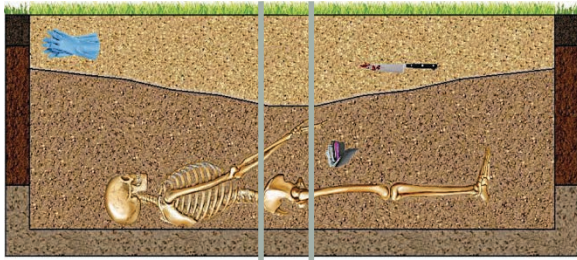
Stage 9



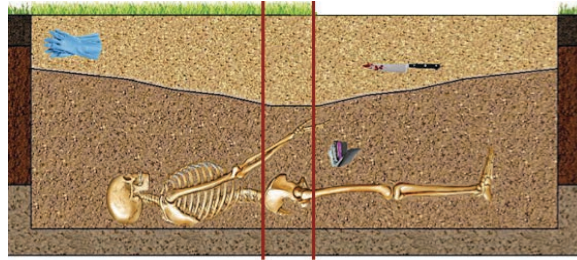
Demirant (B) Excavation Method



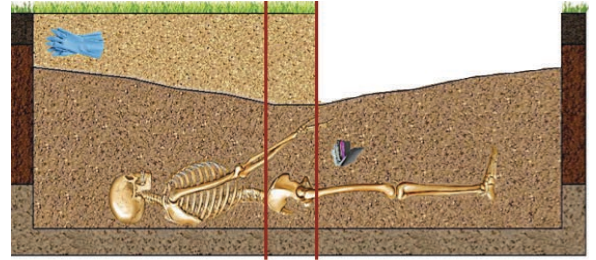
Stage 1



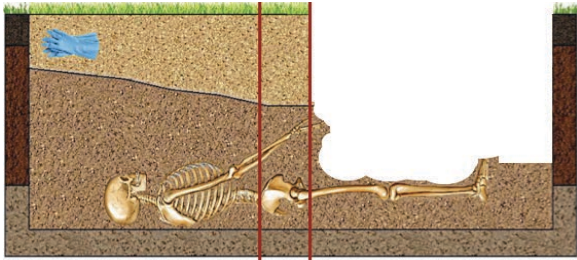
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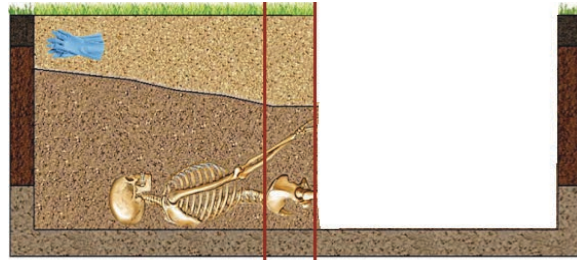
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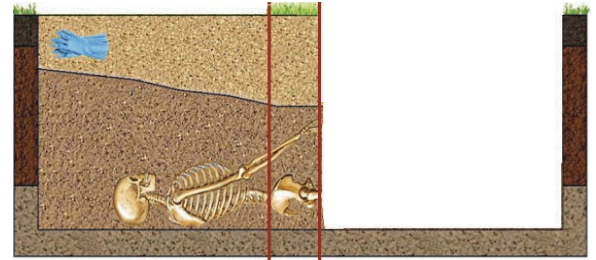
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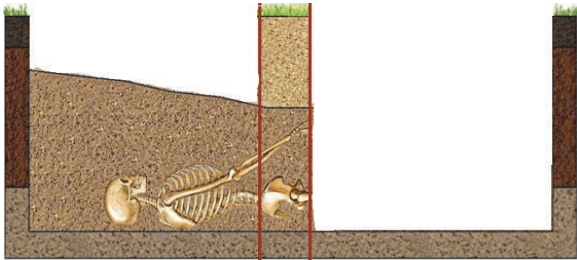
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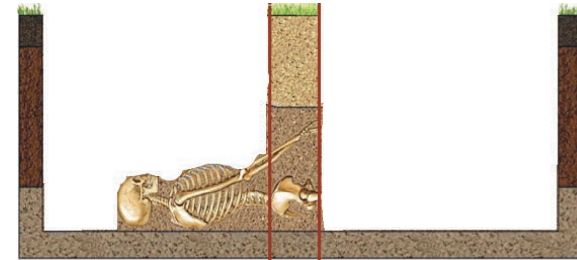
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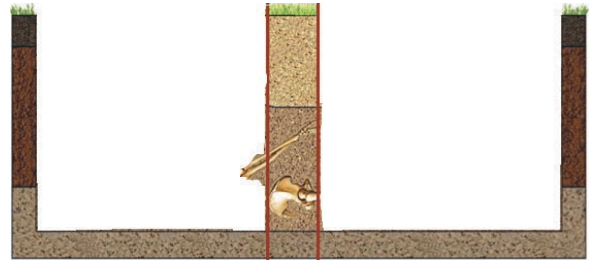
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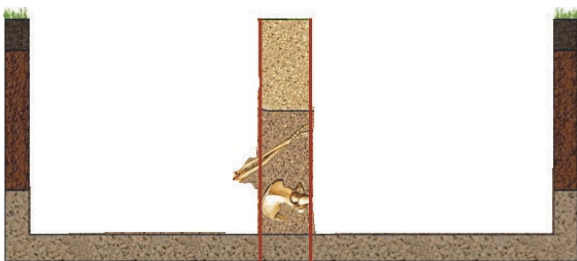
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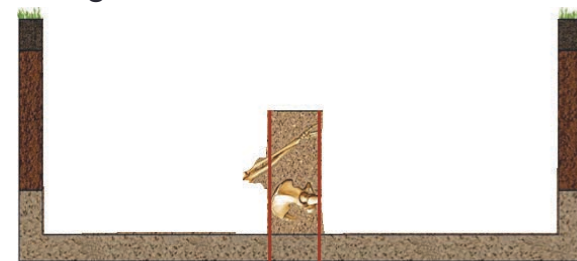
Stage 9



Stage 10



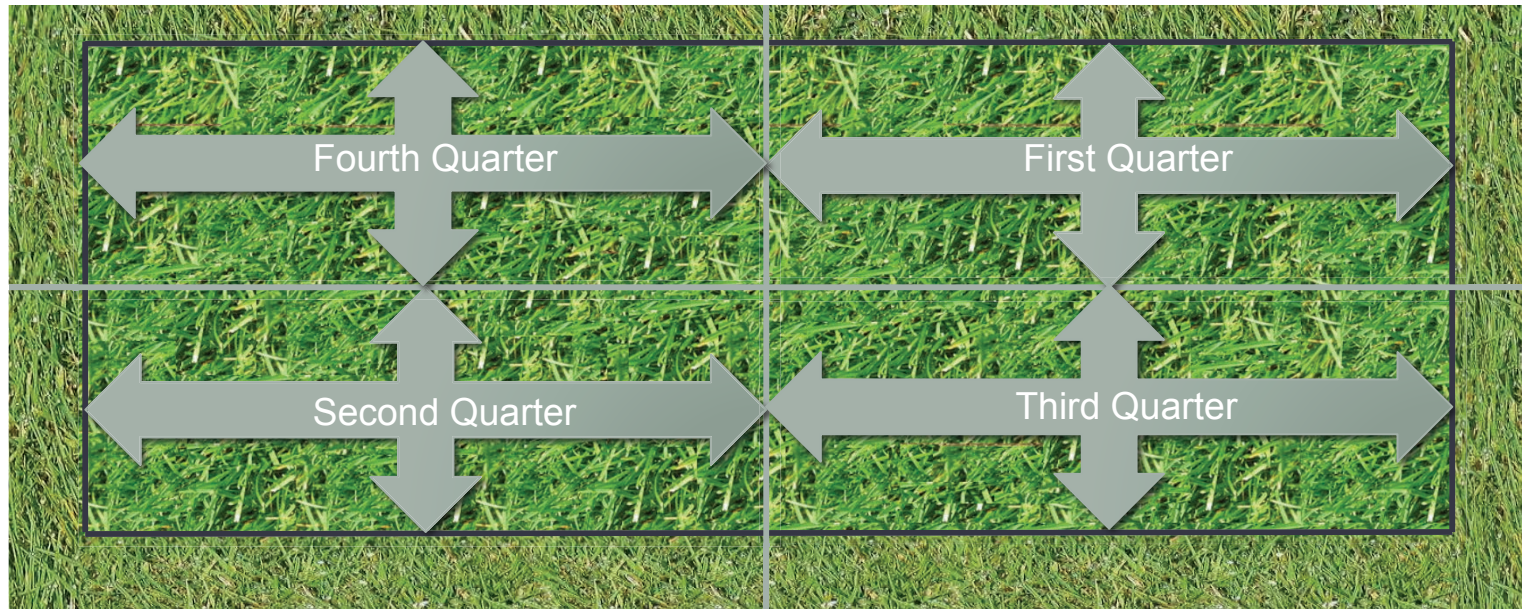
Stage 11



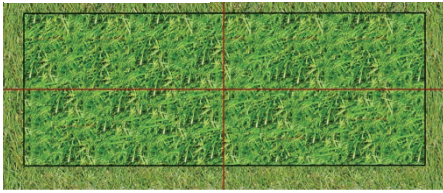
Stage 12



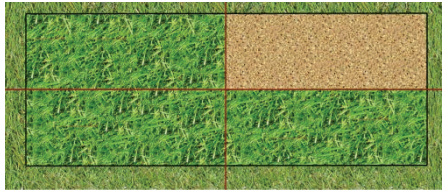
Quadrant Excavation Method



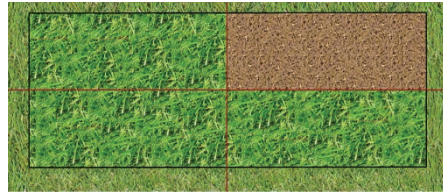
Stage 1



Stage 2



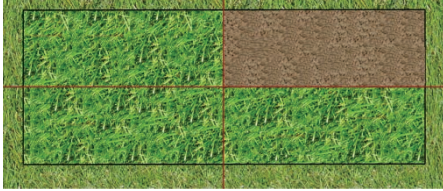
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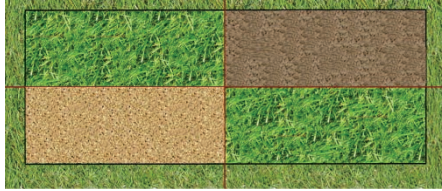
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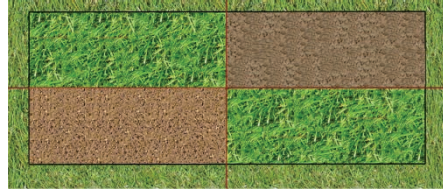
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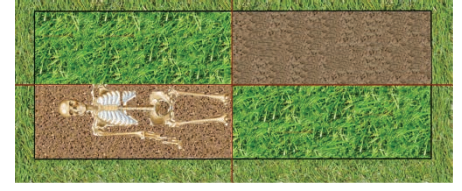
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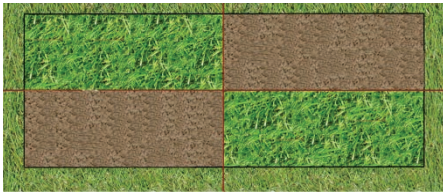
Stage 7



Stage 8



Stage 9



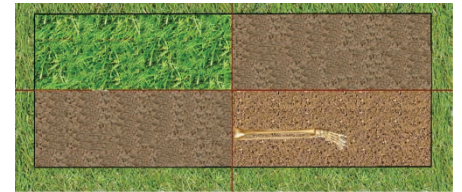
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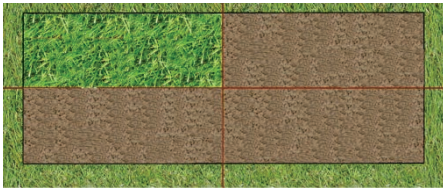
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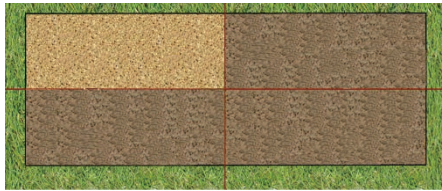
Stage 12



Stage 13



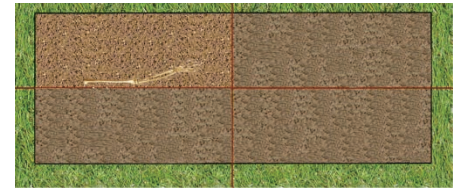
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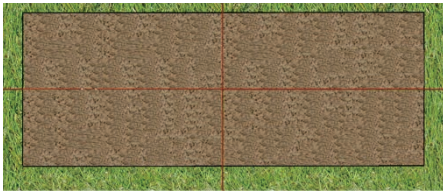
Stage 15



Stage 16



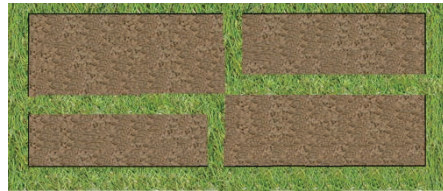
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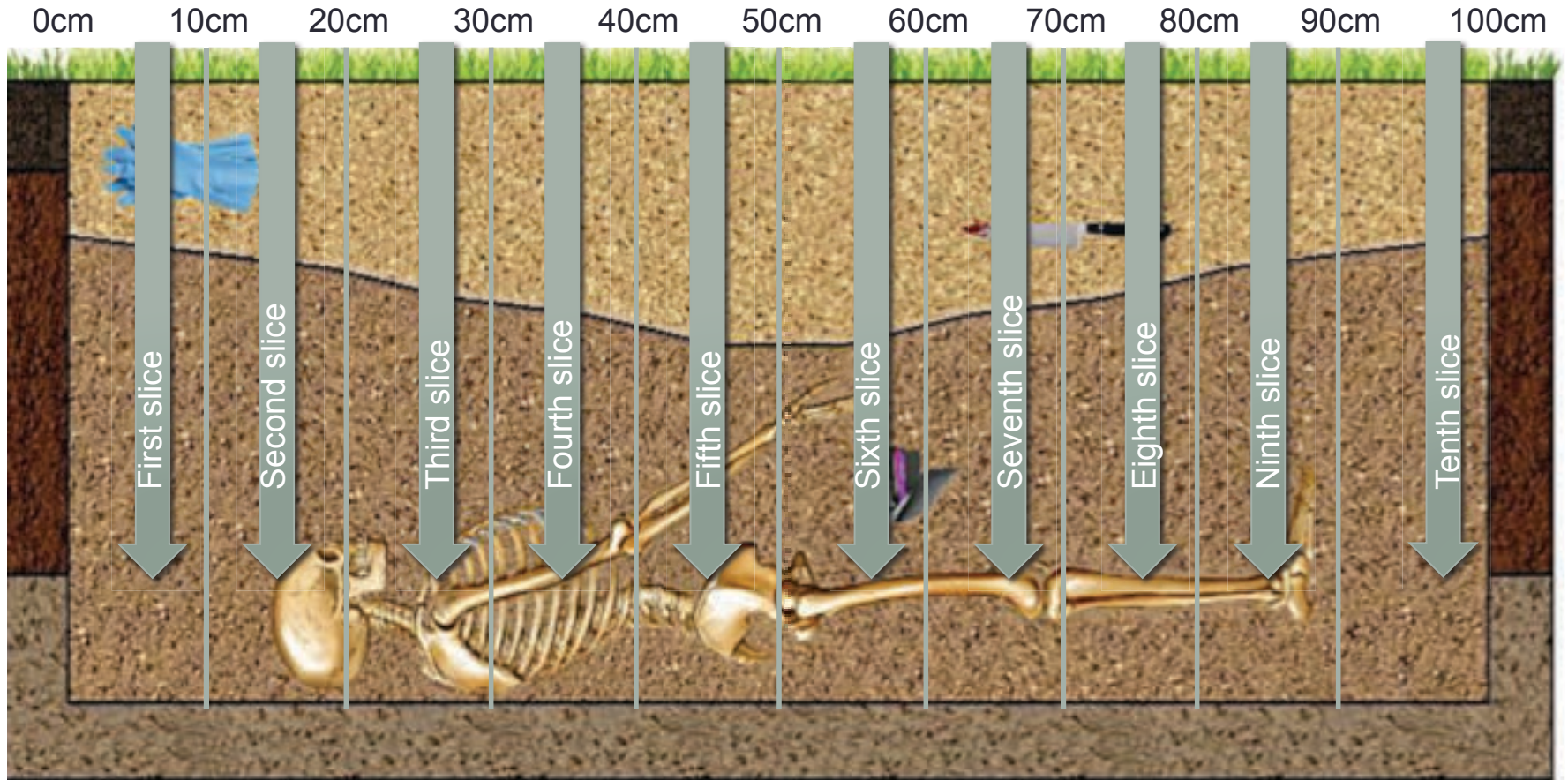
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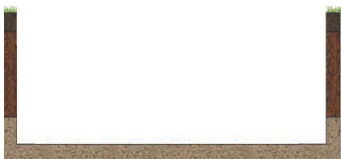
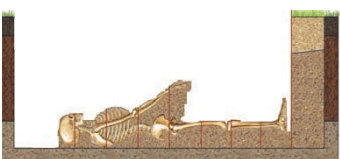
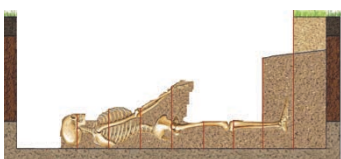
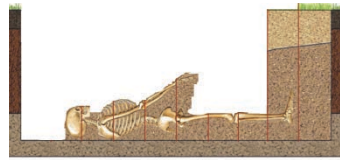
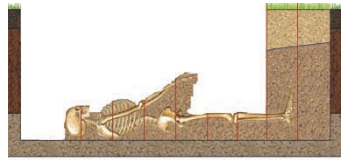
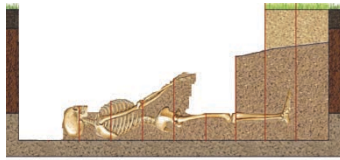
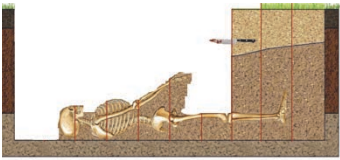
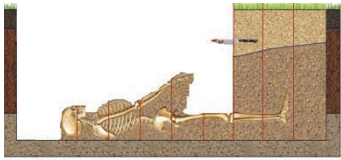
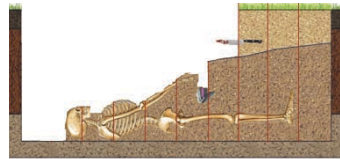
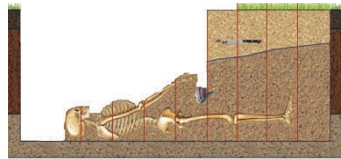
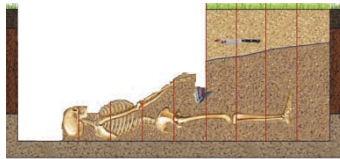
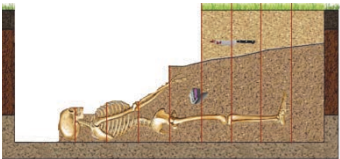
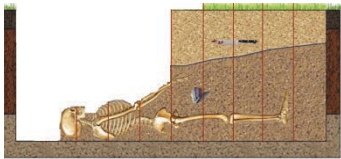
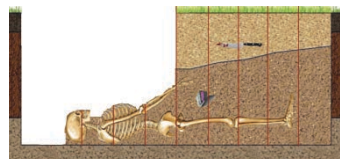
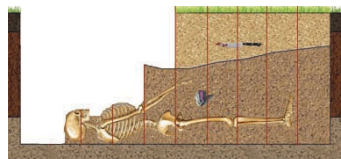
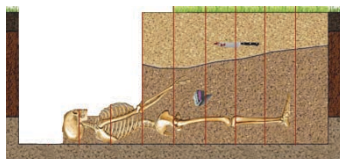
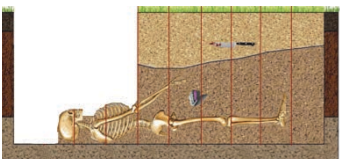
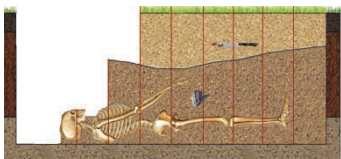
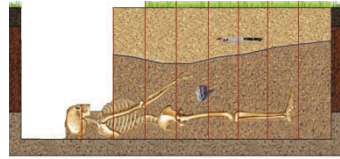
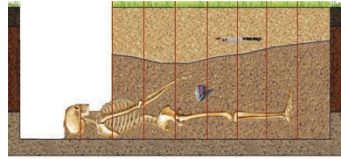
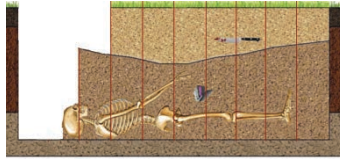
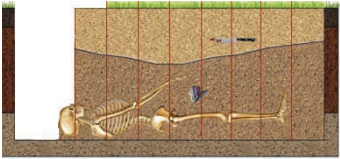
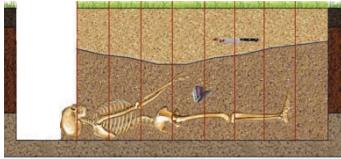
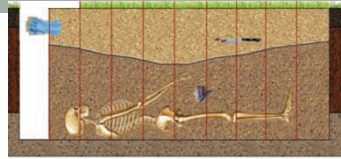
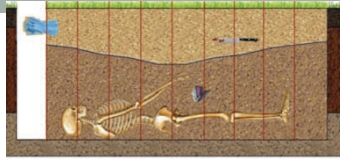
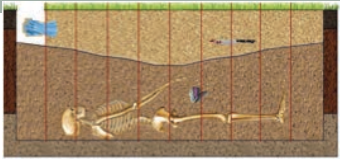


Alternative approach

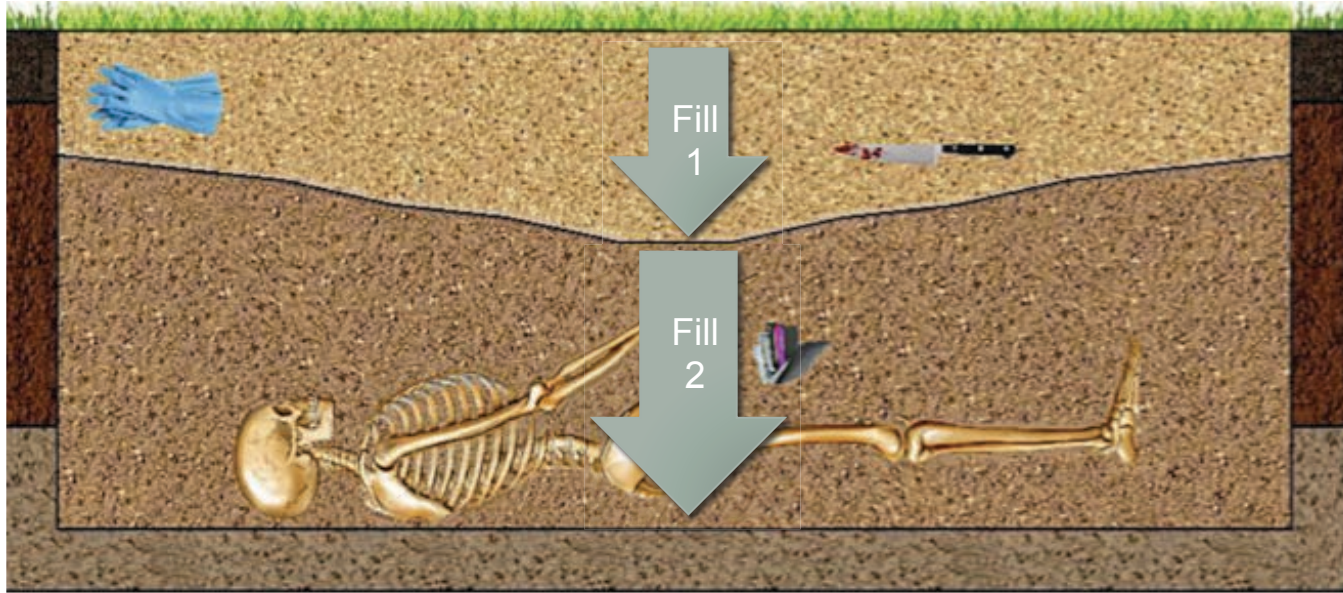


Vertical Slice Excavation Method

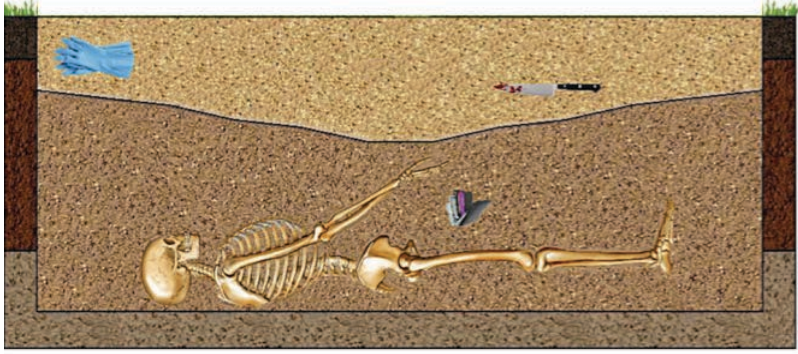




Stratigraphic Excavation Method



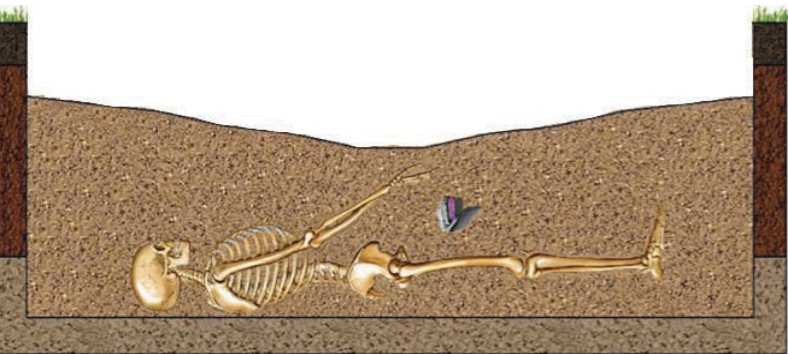
Stage 1



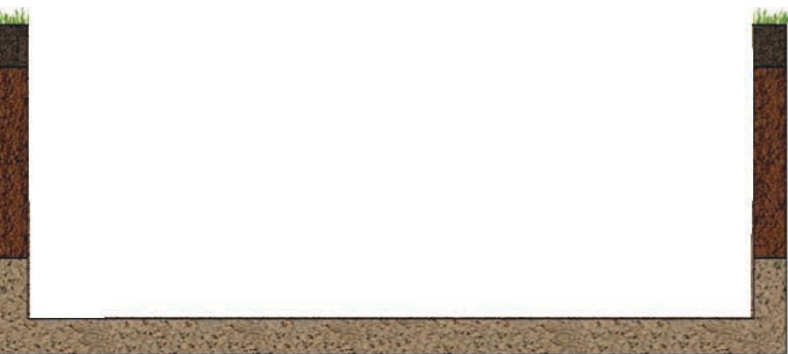
Stage 3



Stage 2



Stage 4



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 –

Admissibility regulations	Satisfied this requirement?
1. Empirical testing	x
2. Peer review	☺
3. Known error rates	x
4. Standards controlling their operation	☺
5. Widely accepted amongst the academic community from which they originate	☺

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

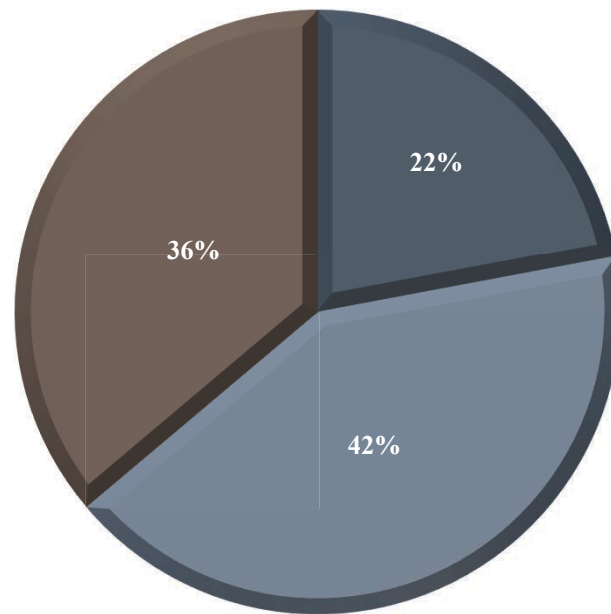
- Admissibility regulations are now being increasingly enforced.
- Practitioners comforted by the assumption that widespread usage and acceptance correlated with reliability.
- No internationally accepted protocol for forensic archaeological investigations exists.
- Implies a lack of professionalism.

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

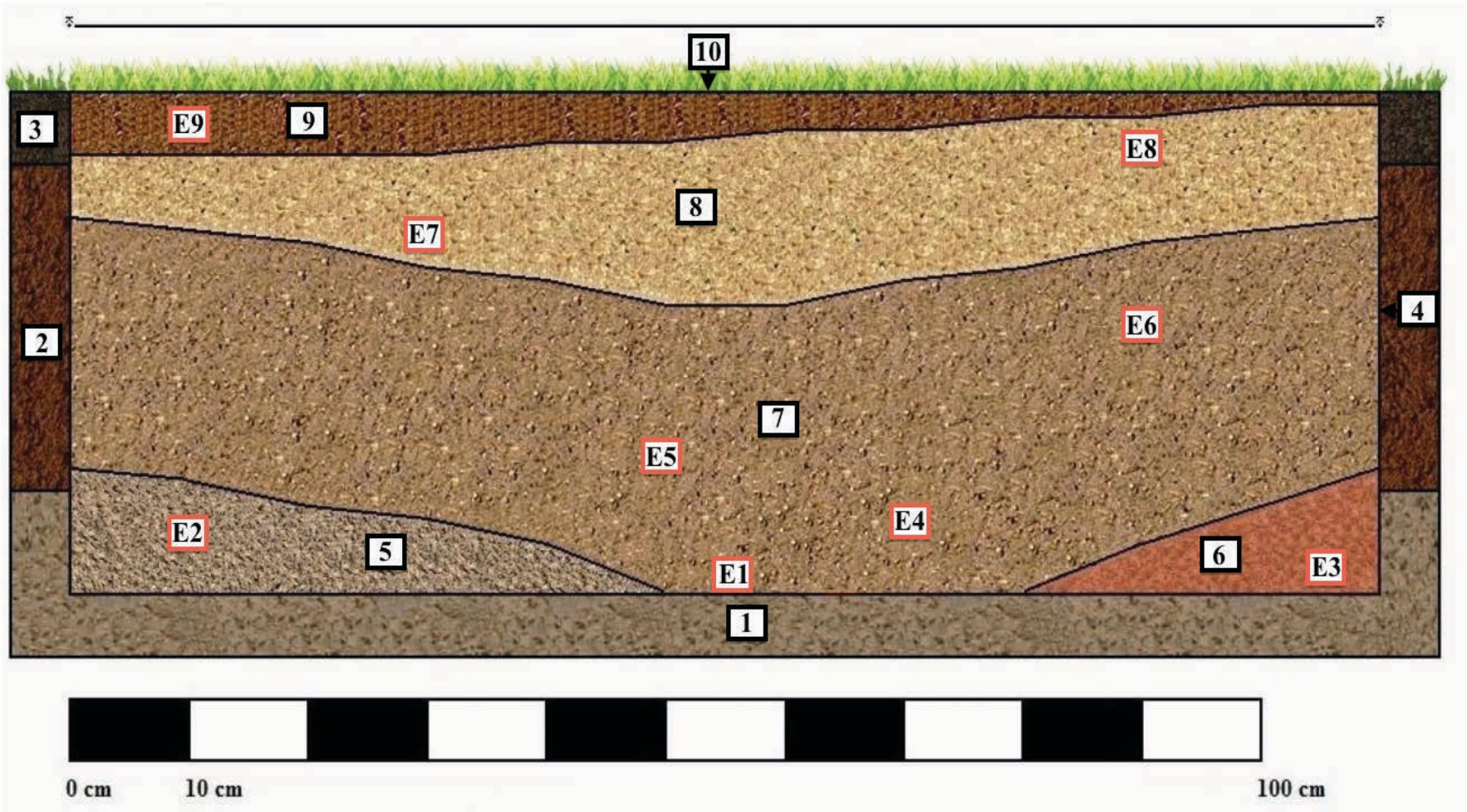
- Archaeologists, archaeological companies, organisations, institutions, museums and libraries were contacted in the United Kingdom, Ireland, Australasia and North America.



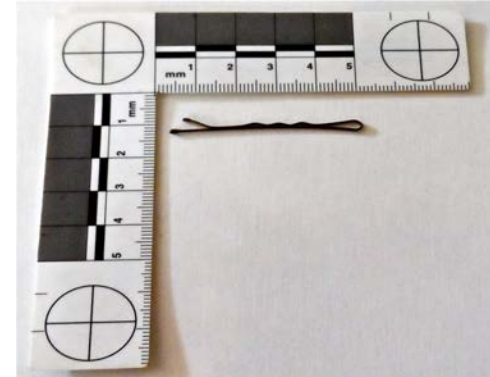
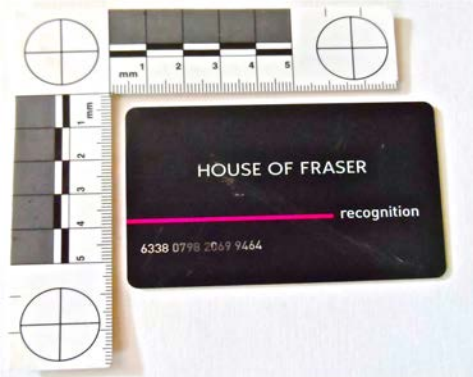
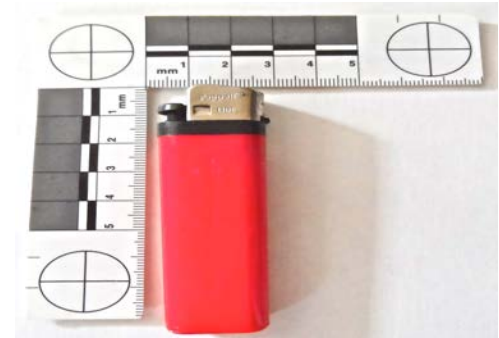
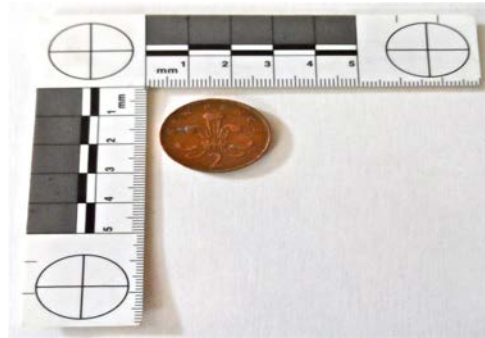
- Excavation will proceed using the Arbitrary Excavation method (n=64)
- Excavation will proceed using the Stratigraphic Excavation method (n=121)
- Excavation will proceed using either the Demirant or Quadrant Excavation method (n=105)

(Evis 2014:58)

Experimental design



Material evidence selection



Layers evidence selection



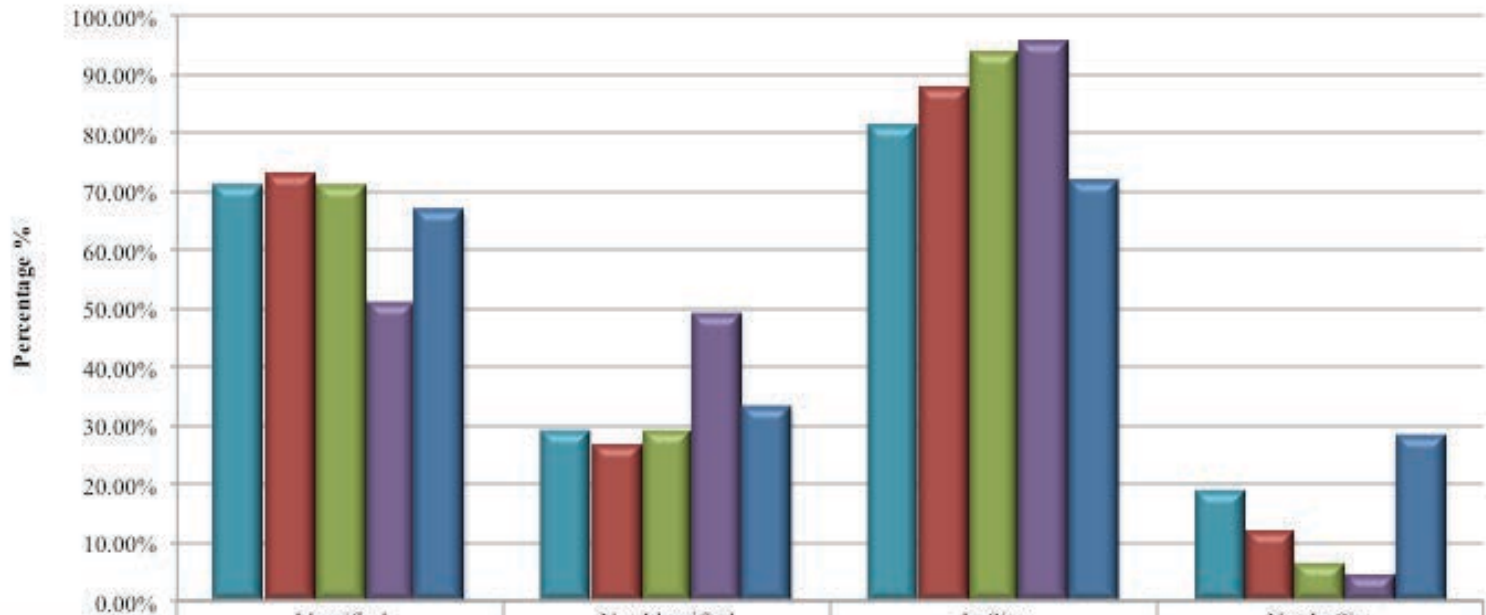
Participant selection

- Gained by inviting archaeological organisations to participate.

Results

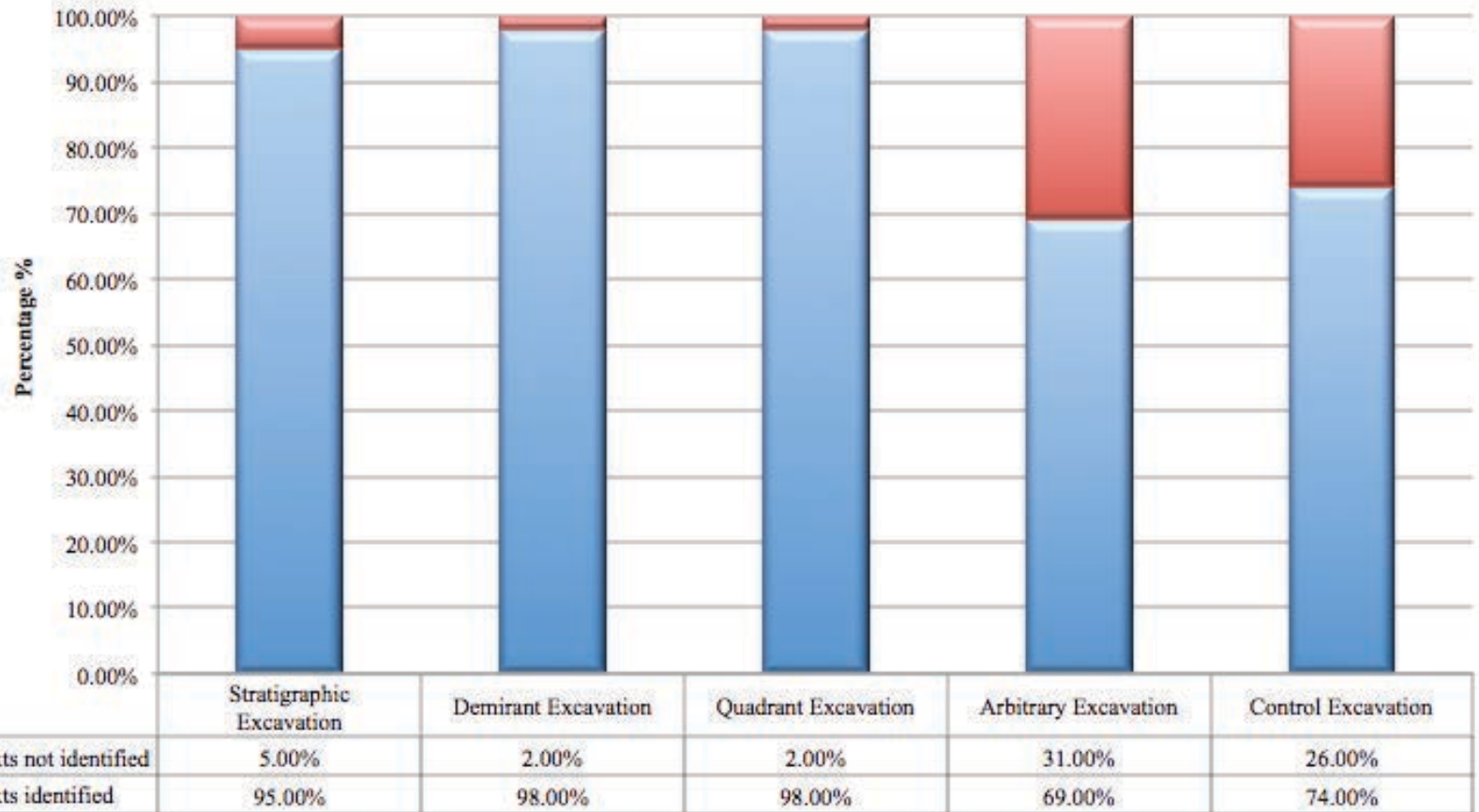
- 50 individuals participated.
- 40 of the participants had archaeological training.
- 10 of the participants acted as controls. They had never received any archaeological training and had no archaeological knowledge whatsoever.
- Freedom to choose what excavation method and recording system to use.
- Freedom to choose what tools to use.

Material evidence results

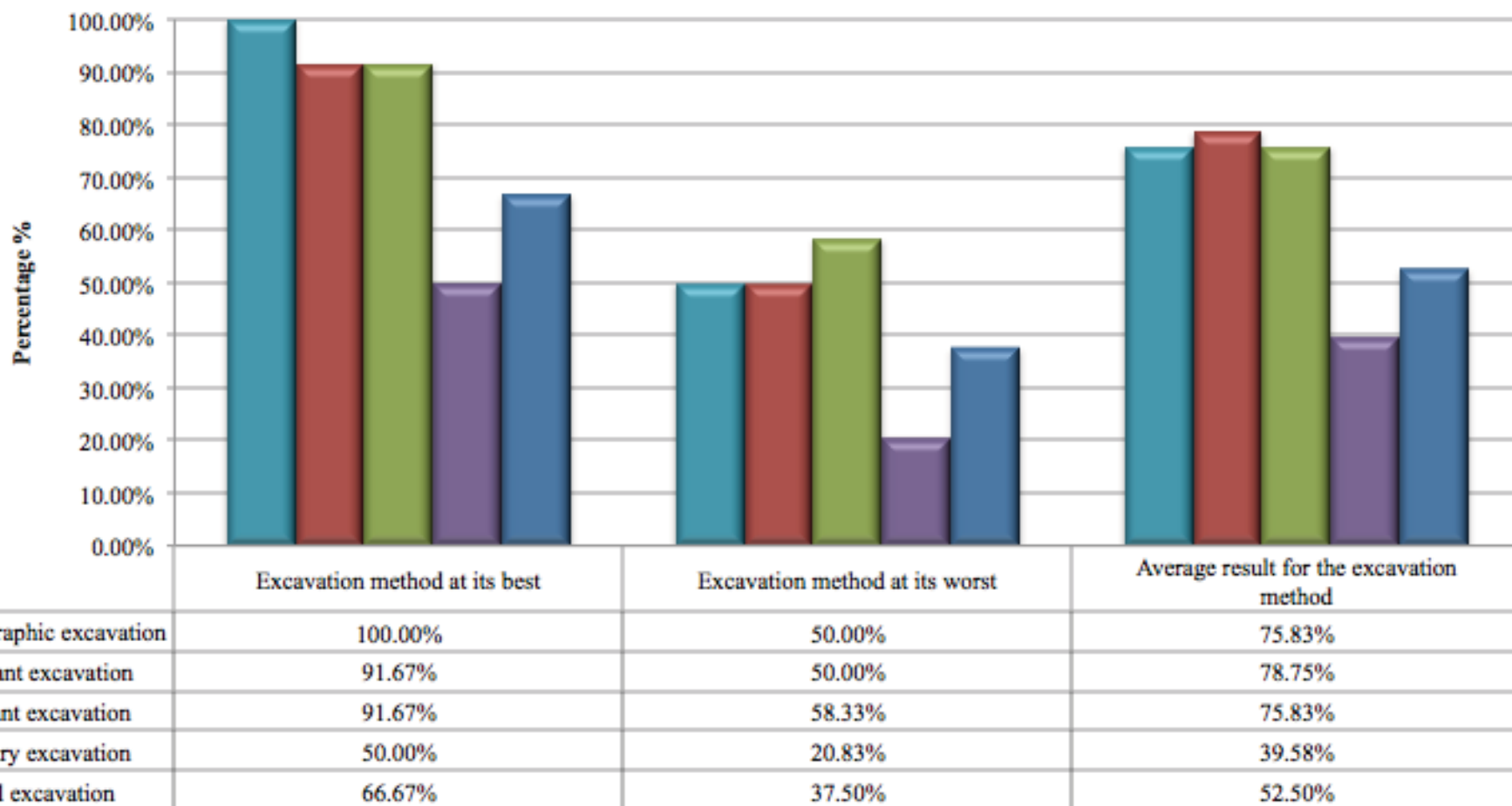


■ Stratigraphic Excavation	71.11%	28.89%	81.25%	18.75%
■ Demirant Excavation	73.33%	26.67%	87.88%	12.12%
■ Quadrant Excavation	71.11%	28.89%	93.75%	6.25%
■ Arbitrary Excavation	51.11%	48.89%	95.65%	4.35%
■ Control Excavation	66.67%	33.33%	71.67%	28.33%

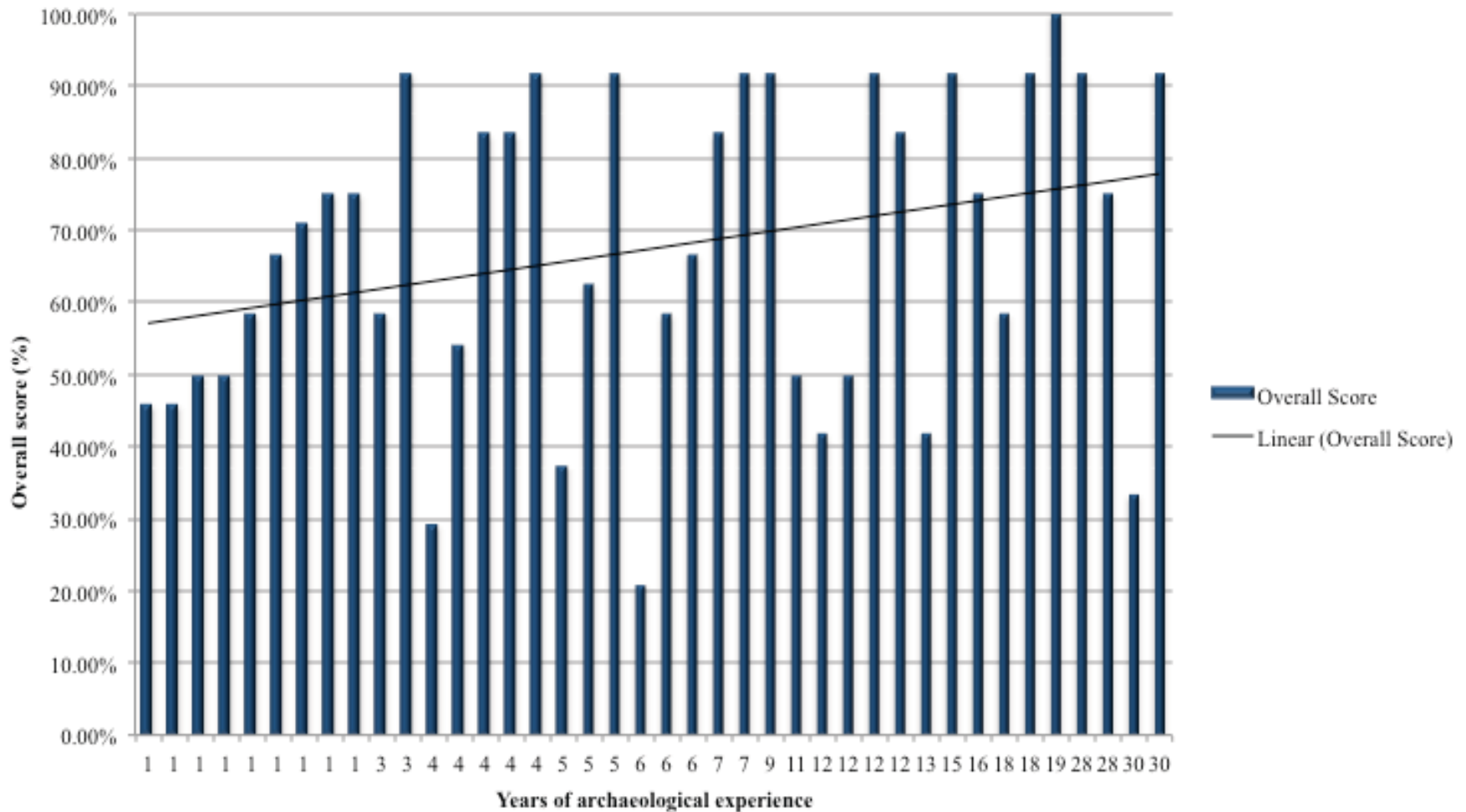
Identification of layers



Overall results



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

- *Empirical testing* is now satisfied due to the work of Evis (2014), Pelling (2008) and Tuller and Đurić (2006).
- *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.

References

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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.

Pelling, S.J., 2008. *A comparative study of evidential recovery in arbitrary and stratigraphic excavation*. Unpublished MSc Dissertation. Bournemouth: School of Conservation Sciences, Bournemouth University.

Tuller, H. and Đurić, M., 2006. Keeping the pieces together: Comparison of mass grave excavation methodology. *Forensic Science International*, 156, 192-200.

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