

Forensic Anthropology *Who, What, Where, When, & Why*



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My Background

2005 University of Florida
B.A. Anthropology; B.S. Zoology

2007 Mercyhurst College
M.S. Forensic & Biological Anthropology

2012 Johns Hopkins University
Ph.D. Functional Anatomy & Evolution



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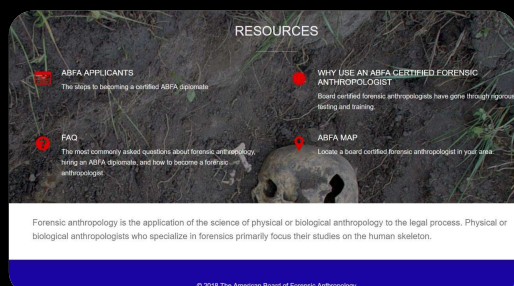


Des Moines University



Diplomate of the American Board of Forensic Anthropology (D-ABFA)

<http://theabfa.org/>



Forensic Anthropology

The application of principles utilized in the anthropological subfields of archaeological and physical anthropology to forensic contexts/investigations



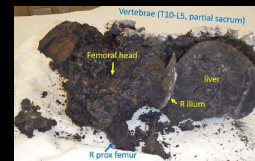
Not all bones are forensically significant...

- ↳ Human vs Non
- ↳ Time Period
- ↳ Context



Role of the Forensic Anthropologist

- 1) Who is this individual?
- 2) What are the circumstances surrounding their death?



In the field...

Forensic Archaeology

- ↳ Document and recovery human remains and evidence in its environmental context



To the Laboratory.....



Document everything...again! Written, photographs, radiographs.

Processing

- ↳ Remove any soft tissue
- ↳ Maceration



Laboratory Analysis

- ↳ Inventory
- ↳ Biological Profile
- ↳ Positive ID
- ↳ Trauma
- ↳ Taphonomy (PMI)
- ↳ Report / Court



Biological Profile

- ↳ Age
- ↳ Sex
- ↳ Ancestry
- ↳ Stature



Age: Subadults

- ↳ Bone Lengths
- ↳ Epiphyseal Fusion
- ↳ Dental Eruption



Age: Adults

- ↳ Somewhat predictable degenerative changes

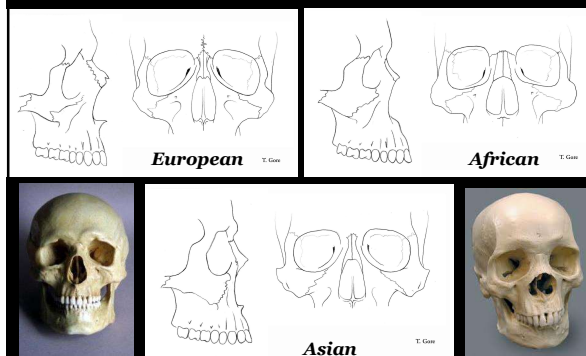


Biological Sex

- ↳ Pelvis
- ↳ Skull
- ↳ Body Size

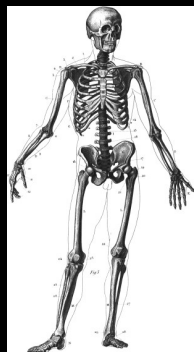


Ancestry Estimation

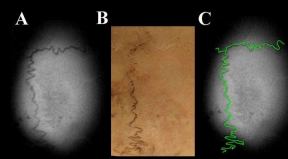


Stature

- ↳ Long bone lengths
- ↳ Regression equations

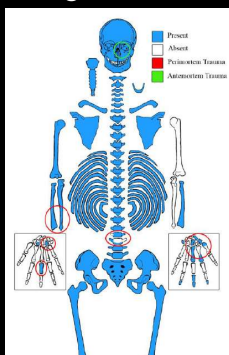


Positive Identification



Biological Profile

ESTIMATES!



CONTEXT OF REMAINS AT SCENE:

- Outdoor scene in a suburban area near intersection of two roads
- Surface scatter in a sloped basin with partial burial due to sediment buildup
- Remains covered by wooden boards and brush

BIOLOGICAL PROFILE:

- SEX: Male
- AGE: Broad Range: 30-50 years
Narrow Range: 35-45 years
- STATURE: Broad Range: 5'3"-5'10"
Narrow Range: 5'4"-5'9"
- ANCESTRY: Not likely Black

BIOLOGICAL PROFILE:

- SEX: FEMALE
- AGE: 18-30 YRS BROAD RANGE,
20-28 YRS NARROW RANGE
- STATURE: 4'5" - 5'2"
- ANCESTRY: LIKELY WHITE

Circumstances Surrounding Death

- ↳ How did the person die?
- ↳ When did the person die?
- ↳ What happened to the body after death?

- ↳ Modifications of Skeleton
 - ↳ Trauma
 - ↳ Taphonomy
- ↳ Interpretation of the Scene

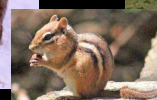


Taphonomy

Post-depositional Processes

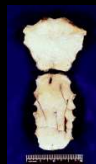
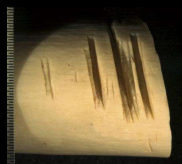


Animal Activity



Trauma

- ↳ Sharp force trauma
- ↳ Ballistics / GSW
- ↳ Blunt force
- ↳ Fire modification
- ↳ Healing trauma

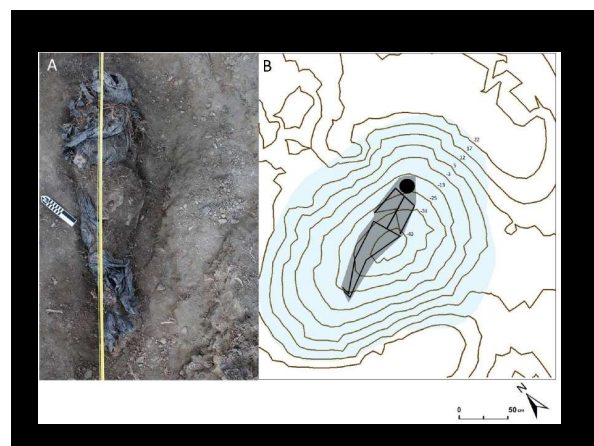


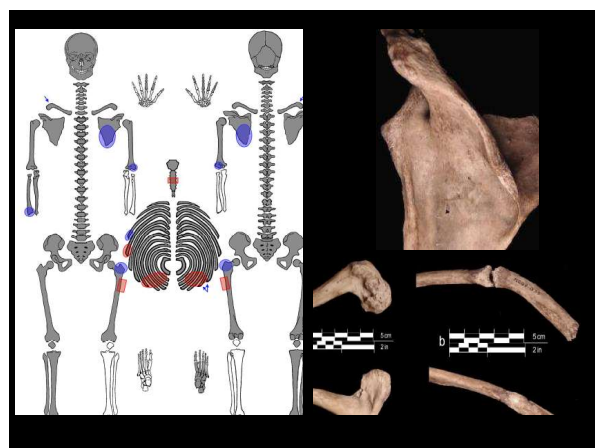
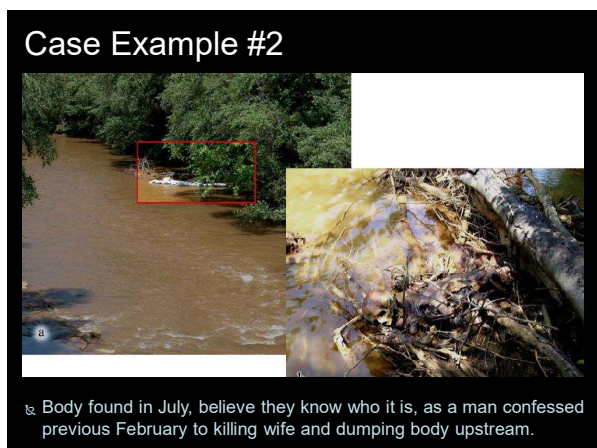
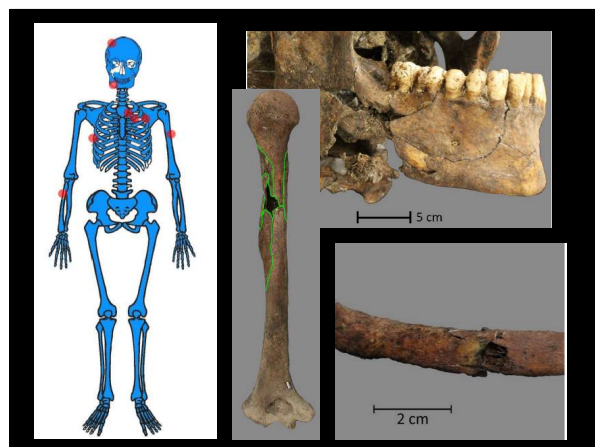
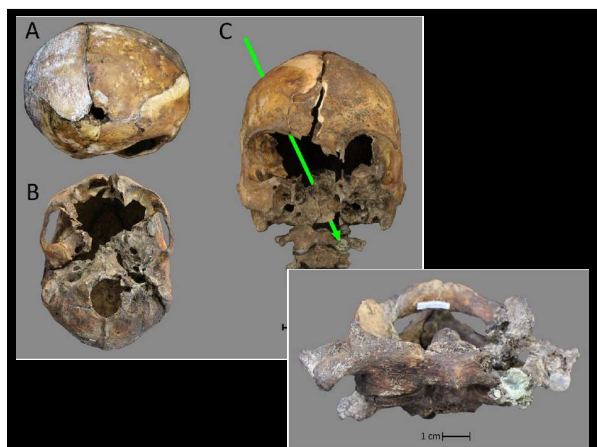
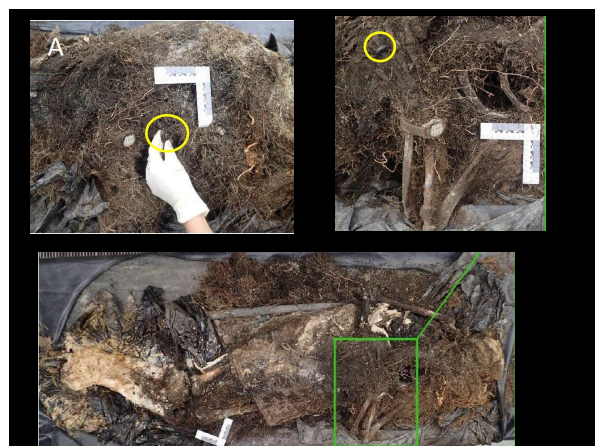
Case Example #1

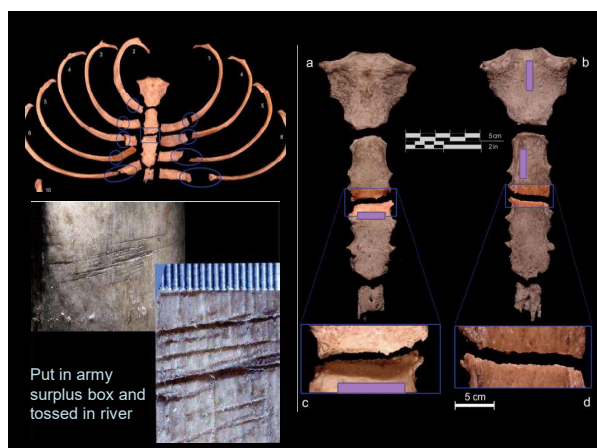


- ↳ Burial
- ↳ Witness
- ↳ Mother shot son multiple times

↳ Death & Burial occurred 8 years ago



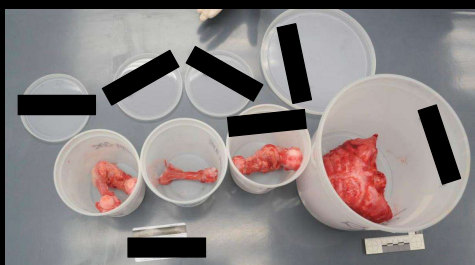




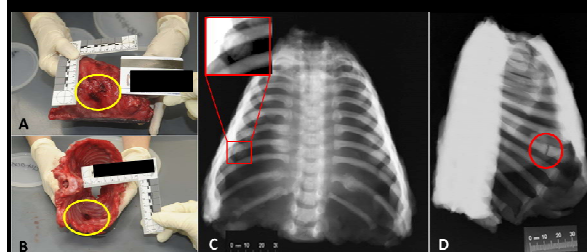
Case Study: Background

- ↳ 2 month old female
- ↳ Paramedics find infant not breathing
- ↳ Resuscitate brought to hospital
- ↳ Dies after being on breathing machine for 2 years
- ↳ Radiology report suggests suspected infant abuse
- ↳ ME requested osteological analysis on all suspected elements

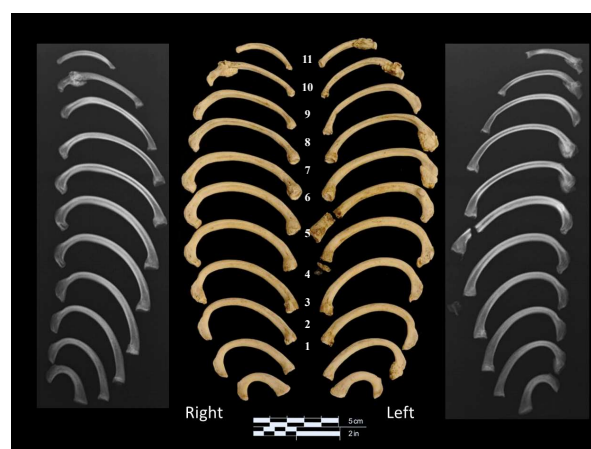
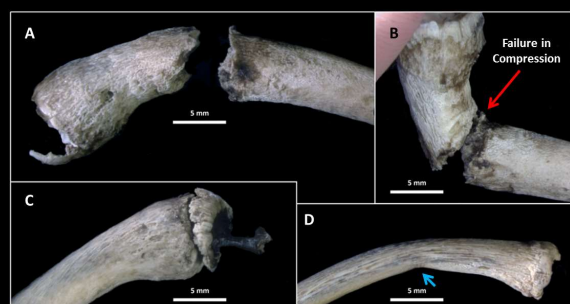
Initial conditions of remains

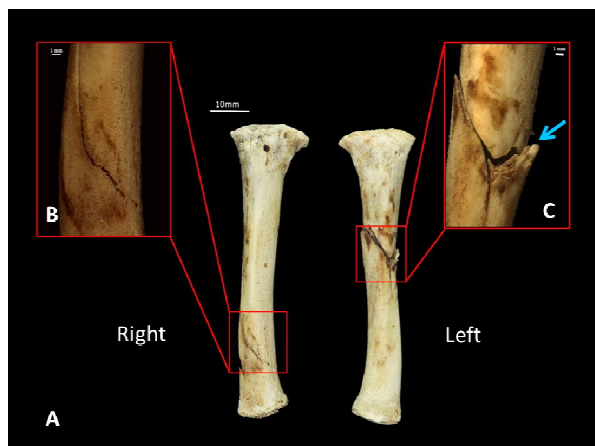


Initial Documentation



Rib Fractures



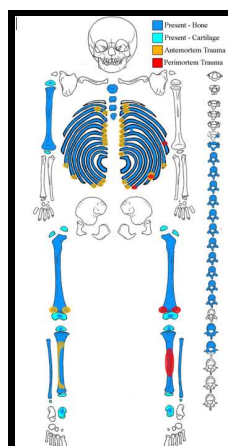
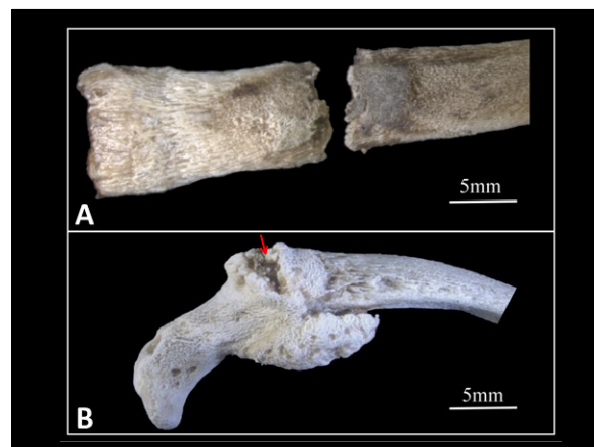
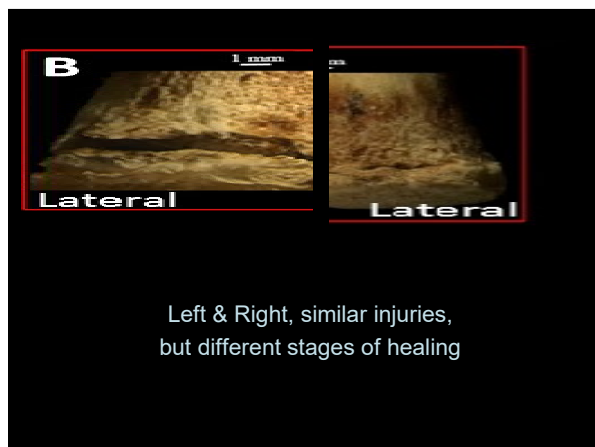
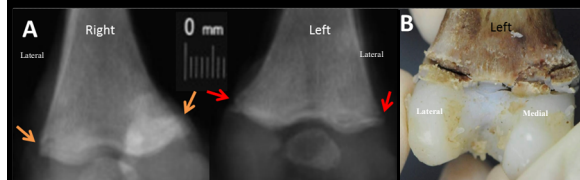


Distal Femora

Metaphyseal Fractures

☞ Corner or Bucket Handle Fractures

☞ Very Specific for Non-Accidental Trauma



Trial

- Father plead to guilty 3rd degree murder
- Admits to shaking the infant on >1 occasion
- Admits to twisting the legs until he heard a "pop"
- Given life without parole
- Mother found guilty of child endangerment

Big Take Aways

Better understanding of:

- ☞ What forensic anthropology is
- ☞ What a forensic anthropologist can offer
- ☞ How to interpret the results

Human vs Non?

Feel free to e-mail or text images
Scale & Multiple Angles



Questions?

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