

## ANT 309 Monday February 17, 2010

### IX Human Remains (or Bioarchaeology)

#### A. Types of Remains

- 1 Whole Bodies
  - a Intentional Mummies: Egypt, Peru
  - b Freeze Dried (The Ice Man)
  - c Bogs
- 2 Cremations
- 3 Burials

#### B Basic Traditional Description

- 1 Skeletal orientation
  - a Ventral or dorsal
  - b Flexed or extended
  - c Orientation of head
- 2 Primary or secondary
- 3 Basic identification
  - a Age of remains
    - i Modern- forensic
    - ii Archaeological
      - (a) Radiocarbon
        1. Direct
        2. Via association
          - (b) Association with time-sensitive artifacts
  - b Age of individual at death
    - i Teeth
      - (a) Eruption
      - (b) Wear
      - (c) Patterns of bone growth and deterioration
    1. Arthritis
    2. Epiphyseal fusion
  - c Sex (difficult for subadults)
    - i Size of bones (males commonly larger than females)
    - ii Morphology of the pelvis (innominate)
  - d Stature: Based on measurements and ratios from bones to living

#### C More recent elaborations

- 1 Ethical Considerations
  - a Native American Grave Protection and Repatriation Act (NAGPRA)
    - i The Case of Ishi's Brain
    - ii Kennewick Man
  - b Public Resources Code (State Law)

- 2 Paleopathologies (signs of ancient diseases and other ailments indicated by erosion, growths, or altered structure)
  - a Arthritis
  - b Iron-deficiency anemia
  - c Venereal diseases
- 3 Signs of trauma
  - a Harris lines: Linear signatures in human long bones detectable by X-ray that reflect intervals of dietary stress- famine
    - i Example in central California study by McHenry- Fewer Harris lines with adoption of the acorn economy
  - b Dental hypoplasia
  - c Signs of inter-personal violence
    - i Healed head wounds in the Santa Barbara Channel: Head bonking (sub-lethal conflict)
- 4 Reconstructing Diet from stable isotopes
  - a Carbon: C12 versus C13
    - i stable isotope ratios are passed up the food chain, leaving distinctive signatures in bone tissue of consumers. The diet can be reflected in these ratios as found in human bone
  - b Carbon pathways and photosynthesis
    - i Mid latitude plants employ C3 pathway in photosynthesis that discriminates against  $^{13}\text{C}$
    - ii Tropical plants (maize) employs C4 photosynthesis that discriminates less against  $^{13}\text{C}$
    - iii Ratios expressed as parts per million from a standard (thus have negative values)
    - iv Example: Maize in the Tehuacan Valley
  - c  $^{15}\text{N}$  versus  $^{14}\text{N}$  ratios Example: Santa Barbara
- 5 Regional Variation
  - a Osteometrics
  - b DNA
    - i Mitochondrial
    - ii Y Chromosome (Nuclear)
  - c Language, and DNA: Native American Haplogroups