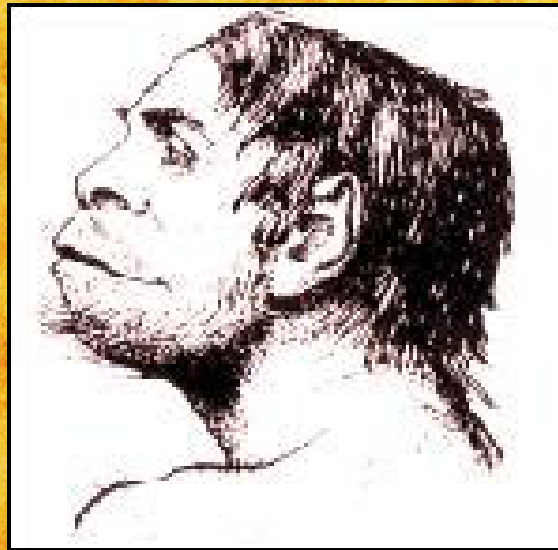


# The Piltdown Man Controversy

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# Introduction



Hinton (left) and Dawson (right) at the site.

- Charles Dawson
  - “Human” skull and jaw found in East Sussex
  - 9 cranial fragments, human brain case and ape-like mandible
  - If it were true...
  - If it was a fake...
  - Authenticity wasn't truly challenged for 40 years

# Physical Examination

- Skull and other artifacts locked away in the British Museum of Natural History
- Only known example of *Eoanthropus dawsoni*
- Plaster molds



# Oakley & Weiner

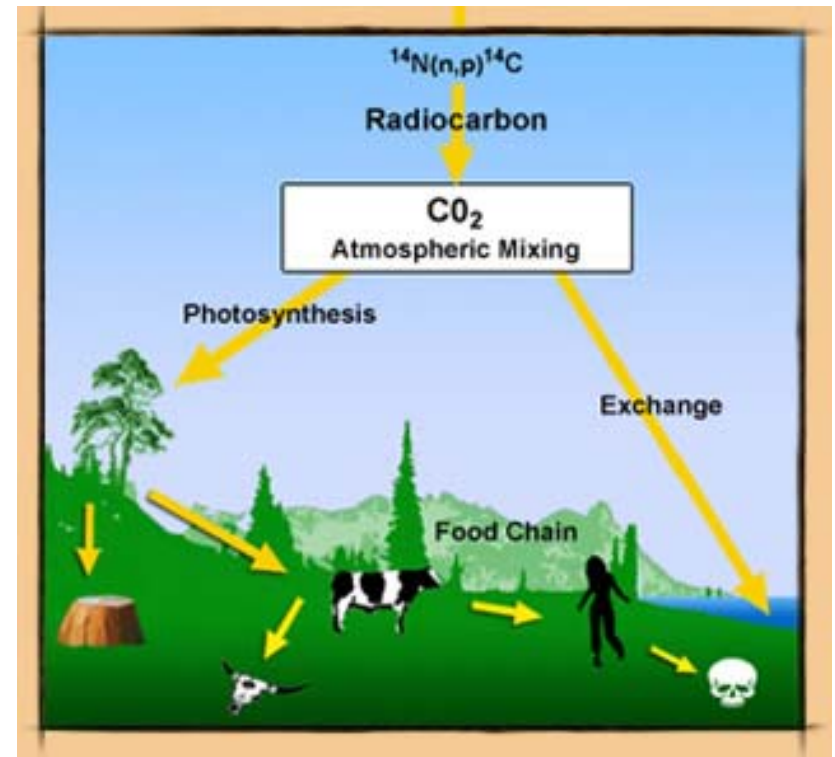
- Oakley (and Weiner) was one of the few to initially doubt the Piltdown Man's origins
- 1915: Chimp jaw bone with human skull fragments
- Unable to test his theory until 1947
- Oakley's tests attracted support of Weiner
- Weiner convinced the Museum to officially investigate the remains

# Methods: FUN Test

- FUN Test: Flourine Uranium Nitrogen Test measures their amounts in the bones
- Older bones: more F, U, less N
- Buried bones exchange flouride ions with ground water
- Calcium ions are replaced by uranium ions
- Nitrogen measured by remaining organic material

# Radiocarbon Dating

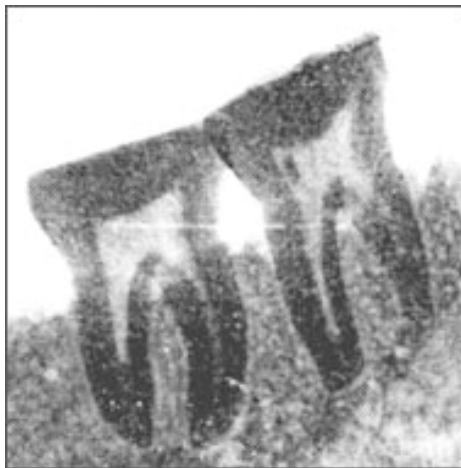
- Every organism contains radioactive carbon
- Builds up in the bones
- Upon dying, the amount of carbon starts decaying
- Measure how much is left to get age



# Abrasion of teeth

- In testing, recreated the abrasion of teeth with a file
- Wore down teeth to mimic the effects of human mastication
- Drilled the mandible to test adequate samples

Piltdown  
Man Teeth  
X-ray



Chimp  
Teeth  
X-ray

# Fluorine Content

- 1948: Oakley tested remains from Swanscombe and Galley Hill
- Middle Pleistocene: 2% fluorine
- Upper Pleistocene: 1% fluorine
- Post-Pleistocene: < 1% fluorine
- Piltdown Man remains: 0.2-0.4% fluorine
  - = from end of the Pleistocene age at the earliest



# Results of the Radiocarbon Dating

- Skull Post-Pleistocene
- < 800 years old
- Mandible significantly younger
- Part of Cranial Bone artificially stained
- 1989 Chris Stringer's radiocarbon dating

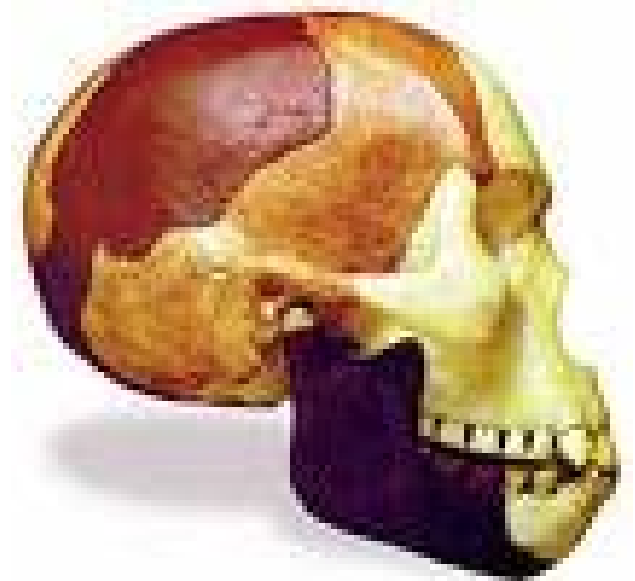
# Visual Observations

- Skull clearly not from one animal
- Crucial anatomical details missing
- Teeth
  - Molars
  - Chimpanzee
  - Natural wear and filing



# Pitdown's Color

- Artificial Staining
- Chromate content and Iron Content
- Sulphate
- Orangutan Jaw – No traces of chromium
  - Would have caused noticeable over-etching



# Alvan T. Marston

- Dentist – Examined Piltdown Fossils
- Cranial treated with bichromate preservation solution
- Mandible and cranial bones don't belong together



# The Bones

- Mandible and cranium bones geologically much younger than Lower Pleistocene age bones
- Mandible was from a recent ape, cranium older
- Mandible: a few centuries



# Other Evidence

- Piltdown Man's tools
  - Acid Test
  - X-ray spectography



# Hoax Theories



- Teilhard de Chardin
- Martin Hinton
  - 1970s – trunk of bones

# Conclusion

- All tests prove it is a Forgery
- Brain developed after physical features
- Hinton is most likely the forger

