

LAB 2: Early Hominids: Cranial Evidence and Stone Tool Technology

Anthropology 151
Fall 2007

Name _____
Date _____

INSTRUCTIONS: Complete this worksheet as you visit the different stations. You may handle the stone tools and skulls if you hold them over the table. Please handle the artifacts with care. Refer to your reading and lecture notes for additional help. These labs are due one week from when you are in lab.

Feel free to discuss the questions with your classmates, the instructor, and TA, but fill out your own worksheet and turn it in at the end of the lab.

STATION 1.

There are five skulls at this station: an australopithecine; *Homo habilis*, *Homo erectus*; *Homo neanderthalensis*; and *Homo sapiens*.

Identify them:

A:

B:

C:

D:

E:

Compare the following traits:

- cranial capacity (brain size)
- relative size of the face in comparison with cranial capacity
- dentition (especially the size of the molars, canines, and the shape of the dental arcade)
- size of the jaw muscle attachments and the zygomatic arches (facial bones that the jaw muscles lie under)
- size of the brow ridges
- robustness of the mandible (is there a chin or is the mandible strengthened internally?)

Which of these traits displays the widest range of variation among the four specimens?

Which of the archaic skulls looks 'most similar to that of the modern human?

Why?

Which of the archaic skulls looks most different to that of the modern human?

Why?

Which traits would you use to arrange these skulls in terms of evolutionary change (change over time)?

STATION 2. STONE FLAKES AND CORES

Even the simple artifacts of the Olduwan tool industry (named after Olduvai Gorge) are important discoveries because they demonstrate an early hominid understanding of stone material and the dynamics of percussion. Tools and techniques of the Olduwan industry are also significant because they are the foundation for all later developments in stone tool technology.

Which of the early hominids used these tools?

What kind of activities do you think the flake and core tools of the Olduwan industry were used for?

What is the best way to positively identify a flake produced by humans?

How could flakes be produced by non-human processes?

STATION 3. CHOPPER TECHNOLOGY

Unifacial and bifacial choppers are another characteristic trait of the Olduwan tool industry. The terms "unifacial" and "bifacial" refer to whether the cutting edge of the tool is made by removing flakes from a single side, or from both sides of the cobble.

Do you think early hominids used these tools in activities related to food production? If so, what kind of activities?

How does the manufacture of Olduwan choppers represent evidence for culturally transmitted behavior?

STATION 4. ACHEULIAN HANDAXE TECHNOLOGY

The Acheulian tool industry emerged around 1.5 million years ago. This industry, marked by its characteristic handaxes represents a major breakthrough in stone tool technology. Handaxes did not immediately replace the Olduwan tools, rather they accompanied them for a period of around 500,000 years until the simple choppers and core tools mostly disappeared.

Which of the early hominids used these tools?

In comparison with the tools and techniques of the Olduwan industry, what are the new tools and techniques involved in making an Acheulian handaxe?

Do you think the emergence of the Acheulian tool industry reflects the use of new food preparation activities used by Homo erectus but unknown to earlier hominids? If so, what kind of activities?