

ANT 3514- Introduction to Biological Anthropology
Transitional Hominids
Lab 10, Week of 3/22/04

Purpose: The purpose of this lab is for you to examine fossil casts and information concerning transitional hominids. You will answer questions concerning *Homo erectus/ergaster*, *Homo neanderthalensis*, and *Homo heidelbergensis*, as well as consider comparative questions concerning the relation of these hominids to earlier forms (*Homo habilis* and *Homo rudolfensis*).

Associated Readings: Chapters 10-12 in your textbook

Terminology Issues: As you are all now well aware, things change quickly in the field of paleoanthropology! This includes various issues in terminology.

Homo erectus v. Homo ergaster – Fossils attributed to these groups span a wide geographic range and an enormous span of time. In addition, the fossils include a wide range of anatomical variability. As such, many researchers (the “splitters”) claim the group should be divided into two. Since the first finds attributed to this group came from Asia, “splitters” feel that the name *Homo erectus* should be reserved for those fossils more closely associated with the Asian finds in geographic distribution, time range, and anatomical features. The other fossils (those from Africa) should therefore be given a new designation of *Homo ergaster*. Not all researchers agree, however. The “lumpers” feel that the anatomical variability found among these specimens falls in line with their wide geographic distribution, and therefore only the name *Homo erectus* should be retained. The author of your textbook, Bernard Campbell, is a lumper (at least concerning *Homo erectus*). Therefore, keeping in line with the text, those specimens originating from Africa will be denoted as “African *Homo erectus* (*Homo ergaster*).”

Homo neanderthalensis v. Homo sapiens neanderthalensis – It is now generally agreed by most researchers that Neanderthals are a separate species of the genus *Homo*. However, you should be aware that Neanderthals are sometimes (depending on what you are reading and the publish date) referred to as *Homo sapiens neanderthalensis*, denoting a subspecies designation within the species *Homo sapiens*. Keeping in line with the text, Neanderthals will be denoted as *Homo neanderthalensis* (or simply Neanderthals).

Archaic Homo sapiens v. Homo heidelbergensis, Homo neanderthalensis – Post-*erectus* specimens span a wide geographic range and are extremely variable in morphology. As such, many researchers disagree on the number of post-*erectus* species and their relations to one another. Until only recently (within the last 10 years), most of these specimens were thrown into a wastebasket category called “archaic *Homo sapiens*,” which may or may not have included Neanderthals. Most researchers now agree that at least three species are represented by “archaic *Homo sapiens*,” (*Homo heidelbergensis*, *Homo neanderthalensis*, and *Homo sapiens*), although there is still widespread disagreement on allocation of fossils to these taxa. (And the hard core splitters argue that additional species should be recognized.) Keeping in line with your text, we will dispose of the wastebasket term, using instead *Homo heidelbergensis* and *Homo neanderthalensis*. (But know that you may come across numerous sources that use the old terminology, particularly if the source isn’t recent.)

Although this lab is not due until next week, it might be helpful to fill in the following table before you attend your lab session.

(at home) Transitional Hominids

Hominids	Date Range	Cranial Capacity	Holotype	Geographic Distribution
<i>Homo habilis</i>				
<i>Homo rudolfensis</i>				
<i>Homo ergaster</i>				
<i>Homo erectus</i>				
<i>Homo heidelbergensis</i>				
<i>Homo neanderthalensis</i>				

Useful websites:

www.talkorigins.org/faqs/homs Click on hominid fossils and type specimens under table of contents

www.modernhumanorigins.com/hominids.html

STATION 1 – Early Homo

(in class) Discuss the anatomical variation between *Homo habilis*, African *Homo erectus* (*Homo ergaster*), and *Homo rudolfensis* regarding:

	<i>Homo rudolfensis</i>	African <i>Homo erectus</i> (<i>H. ergaster</i>)
Supraorbital Torus		
Cranial Vault (Shape/Height)		
Orbit Size and Shape		
Occipital Area (Torus)		

(at home) Some scientists have argued that *H. habilis* and *H. rudolfensis* are one species. Do you think there is good reason to separate these skulls into two species or should they be collapsed into a single species? Explain your reasoning.

STATION 2 – *Homo ergaster* vs. *Homo erectus*

(in class) Compare *Homo erectus* and *Homo ergaster*. Complete the table:

<i>Homo erectus</i> (Sangiran 17)	<i>Homo ergaster</i> (KNM-ER 3733)
- long and low vault, receding frontal “squama”	
- angulation at rear of skull with a “transverse” occipital torus present	
- large supraorbital torus	
- high, rounded orbits	
- strong alveolar prognathism	
- canine fossa absent	

STATION 3 – *Homo heidelbergensis*

(in class) Compare the supraorbital tori and frontal bones between *Homo erectus* and *Homo heidelbergensis* (Kabwe). Are there any differences?

(in class) Name several differences (at least 2) between *Homo heidelbergensis* and modern *Homo sapiens*.

(at home) Discuss the temporal (time) and spatial (geographic distribution) overlap between *Homo erectus* and *Homo heidelbergensis*. What might the anatomical, temporal and spatial data regarding *Homo erectus* and *Homo heidelbergensis* imply regarding the evolutionary family tree? (Refer to Box 10-1 and 14-2)