

Name \_\_\_\_\_

ANT 2230 Biological Anthropology

Lab 8 The genus *Homo*

Part I: Early Homo: “habilis” and “rudolphensis” compared

There is much controversy concerning Early Homo, taxonomy included. Make these anatomical comparisons to see if you can understand the basis for the problematic systematics.

	<i>A. africanus</i>	<i>H. habilis</i>	<i>H. rudolfensis</i>
Specimen #			
Discovery site			
Antiquity			
Brain size			
Browridge size			
Facial prognathism			
Palate size			
Upper to mid-face breadth (relative)			
Postcranium			
Limb proportions	Ape-like	Ape-like	?
Fore-limb robusticity	Ape-like	Ape-like	?
Hand	Mosaic	Mosaic	?
Hindfoot	Retains some climbing adaptations	Retains some climbing adaptations	Homo erectus like
Femur	Great biped!	Australopithecine like	Homo erectus like

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Part II Kenyanthropus platyops

In 1998, Meave Leakey's team discovered this hominin ancestor from a site west of lake Turkana. KNM-WT 40000 was resting in 3-4 myo sediments. Later other cranial fragments, isolated teeth, and two mandibles were assigned to this genus. Now that you have examined the features of early Homo, try to evaluate the similarities and differences between Australopithecines, Kenyanthropus, and Homo to form an opinion on the ancestry of Homo. Do you think *K. platyops* or *A. africanus* is more similar (circle your choice).

	<i>A. africanus</i>	<i>K. platyops</i>	<i>H. rudolfensis</i>
Brain size (from your memory)			
Size of nasal aperture			
Post-orbital constriction			
Browridge size			
Facial prognathism			
Second molar tooth size			
Anterior facial pillars			

Part III (answer this part at home)

Describe the three major changes we see when we go from early Homo to Homo erectus (hint: all three are an increase in the size of an anatomical feature).

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Part IV

The cranial anatomy of *Homo erectus* can be explained using the Anterior Tooth Loading Hypothesis. What features of anatomy do the adult *Homo erectus* fossils share? How do these compare to the adolescent *Homo erectus*?

<i>Anatomical Feature</i>	<i>Asian H. erectus</i> (Sangiran 17)	<i>African H. erectus</i> (ER 3733)	Adolescent early African <i>erectus/ergaster</i>
Sagittal Keel			
Brow ridge			
Frontal lines			
Canine juga			
Anterior tooth size (width)			
Forehead?			
“Long and Low” skull			

What is the difference between ontogenetic features and phylogenetic traits? How do you think this distinction applies to *Homo erectus* given the features of the adult versus juvenile forms? What are the differences and similarities between these two erectines?

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Part V

Look at the innominates and femurs of Australopithecines (either *A. africanus* or *A. afarensis*) in comparison with the chimp, *Homo erectus*, and the human. Compare them and describe what features make the Australopithecine different from the ape. Those features relate to bipedal locomotion. Now describe how the *Homo erectus* pelvis differs from an Australopithecine. Why are they different? What new evolutionary pressures shaped the pelvis of *Homo erectus*?