

Stephanie Melillo: Last summer, I was a Kirtlandia Adopt-A-Student at the Cleveland Museum of Natural History. My advisor for this project, Dr. Yohannes Haile-Selassie, is the curator and head of Physical Anthropology at CMNH and an adjunct professor at CWRU. In his fall semester class, Human Evolution: The Fossil Evidence, we discussed the evidence for bipedality in the Miocene hominids (the earliest known human ancestors). A species of particular interest to me was *Orrorin tugenensis*. This hominid species, named in 2001 by a team of French researchers, is dated to 5.8 million years ago (mya)--a contender for the distinguished title of earliest known human ancestor. One of the fossils assigned to *O. tugenensis*, a remarkably complete proximal femur, was used as evidence for bipedality of this species. A paper published in 2002 by the same team of French researchers claimed that certain aspects of this 5.8 million year old femur looked more like a modern human femur than other fossilized hominid femora that date roughly to 4-3 mya. The human lower limb differs from the lower limb of an ape in a number of ways: the place muscles attach to bones, the orientation of tendons and ligaments, and the shapes bones themselves. These differences are the result of the evolution of our unique mode of locomotion and are evident in lower limb bones like the femur. My internship was a study of the morphology of the proximal (top portion) femur in humans and apes from the Haman-Todd osteological collection (a renowned collection of human and ape skeletons kept at CMNH). I collected comparative data on the anatomical characteristics of the proximal femur used as evidence to support bipedal locomotion in *O. tugenensis*.

I concluded that while the femur does seem to belong to a biped, the characters used to support its modern human appearance were of little functional value. I reached this conclusion because the range of variation in these anatomical characters overlapped in apes, fossil hominids, and modern humans. Overlap in the characters disallows a distinction to be made between apes, which are quadrupedal, and humans, which are bipedal, therefore rendering those characters uninformative in regard to locomotor strategy.

My internship was financially supported solely by a wonderful CMNH donor, Pat Douthitt. Pat is a Cleveland Heights resident who has supported the Physical Anthropology Adopt-a-Student multiple times. The Kirtlandia Adopt-A-Student program, now in its 26th year of operation, provided me with a valuable chance to do research on a topic that interests me very much. In addition, I gained experience in research design, poster presentation, scientific writing and the use of skeletal collections. I used the paper from this internship as a writing sample in my graduate school applications and Dr. Haile-Selassie was gracious enough to write a letter of recommendation to support those applications. I partially credit this internship for my acceptance to an excellent graduate program. I would strongly recommend an internship like this to anyone considering pursuing graduate study, or just interested in getting research experience.