

Name _____

Date _____

Literacy Lab #20: "You'll never walk alone..." Living Environment: Comet 2011-2012

"You'll never walk alone..."

Directions: Take a few minutes to read the article below either online (or on the back of this page.) Write responses to the statements or questions below. Cut/copy/paste is not allowed – use your own words and thoughts, based in research if needed.

Read more: <http://news.nationalgeographic.com/news/2012/120328-lucy-fossil-foot-science-australopithecus-trees-evolution/>

Fact-finding: List three facts that you learned in this article.

1.

2.

3.

Vocabulary: List and define three unfamiliar words in the space below.

Implications: What are your feelings about this "discovery"? Why is this type of discovery important/unimportant? Fully explain your answers.

"Lucy" Wasn't Alone? Had Neighbors in Trees, Fossil Foot Suggests

New fossil adds to complexity of our evolutionary march to bipedalism.



The pre-human fossil's fourth toe (pictured) is elongated like a monkey's. Photograph courtesy Yohannes Haile-Selassie, Cleveland Museum of Natural History

Published March 28, 2012

As our prehistoric ancestor "Lucy" was making tracks in the Horn of Africa millions of years ago, another type of pre-human might have been watching from above, a new study suggests.

Scientists have pieced together a new type of pre-human foot from 3.4-million-year-old fossils found in Ethiopia. The bones don't belong to the Lucy fossil's species, *Australopithecus afarensis*—the only hominid (or member of the human lineage) thought to be living then, according to findings reported today in the journal

Nature.

Researchers say the partial foot points instead to the existence of a previously unrecognized pre-human that was a contemporary of Lucy.

Whereas Lucy was designed for upright walking—a crucial step in the evolution of humans—her newly identified neighbor appears to have been a bit of a swinger. Analysis of the newfound foot suggests its

That's a surprise, because "once walking on two legs evolved, we didn't think there was an additional species that had the capability for climbing up trees," said study leader Yohannes Haile-Selassie, an anthropologist at the Cleveland Museum of Natural History.

Discovered in the Burtele area of the Afar region in 2009, the fossil foot has separated, thumblike big toe—perfect for climbing and grasping branches, the study team said. The other toes were somewhere between those of other hominids and apes, although the curiously elongated bone of the fourth toe is more like a monkey's, the team noted. Yet the foot also reveals upright-walking traits. For instance, the toe bones have joints and ends that would have allowed the species to hyperextend its toes to push off while

walking, the study found.

Feet Not Made for Walking

"The foot belonged to a species that was more efficient walking on two legs when on the ground than apes"—but less efficient than Lucy, due to those foot "thumbs," Haile-Selassie said. Since only a partial foot of the mysterious hominid, or hominin, has been found, the team can't say if the Burtele foot marks a new species, only that "it does not belong to the contemporaneous *Australopithecus afarensis*," said Haile-Selassie, whose work was partially funded by the National Geographic Society's Committee for Research and Exploration. (The Society owns National Geographic News.)

The fossil remains do, however, closely resemble those of an earlier human ancestral species, *Ardipithecus ramidus*, which lived about a million years earlier. Haile-Selassie said the Burtele foot's owner likely moved very similarly to *Ardipithecus*: on two legs on the ground, albeit clumsily, but using all fours when in the trees.



The Burtele partial foot in the lab. Photograph courtesy Yohannes Haile-Selassie, Cleveland Museum of Natural

That an *Ardipithecus*-type foot should persist so late suggests our early ancestors trod a more tortuous evolutionary path towards full bipedalism than previously thought, said team member Bruce Latimer, of Case Western Reserve University, Cleveland. "It's another window into solving the problem of how we got from a primitive foot to a modern human foot," he said.

If the Shoe Fits?

Harvard University evolutionary biologist Daniel Lieberman, who wasn't part of the study, agreed the new fossil foot fits *Ardipithecus*'s shoes quite neatly. "This looks very much like the same kind of foot, but it's a million years younger, so that lineage of hominins didn't go extinct when the *australopithecines* evolved—they continued to be there," he said. "The same time Lucy and her kin were walking upright ... there were other hominins walking in a very different manner," the evolutionary biologist added.

Lieberman cautions against overhyping the find, however, since "we've known for a while that the feet out there are diverse.

"We've had lots of scraps of fossil feet here and there, and all of them have suggested that the process is pretty complicated," he said. "This doesn't really overturn what we previously thought—it just adds to what we previously thought." Even so, the study team maintains that the Burtele foot is the first solid evidence for more than one pre-human living between three and four million years ago.

There is, however, another contender for the title of Lucy's neighbor: *Kenyanthropus platyops*, a putative ancestral human species from Lucy's time. Due to the distorted condition of the *K. platyops* fossil's pieced-together skull, some researchers think it's just a Kenyan variant of *A. afarensis*, Haile-Selassie said—which, if proved, might leave the Burtele foot as our best evidence yet that Lucy had company.

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