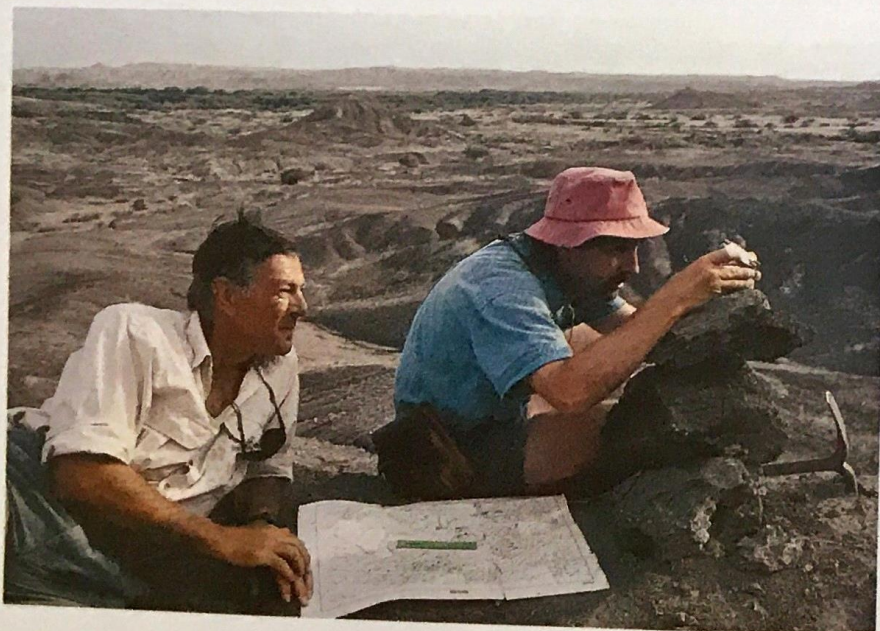


66 HORSE JAW AND  
HOMINID BONES IN  
ETHIOPIA

## LUCY

THE FAMILY BUSH: MORE  
HOMINIDS

In a desert region of Ethiopia called the Afar Triangle not much grows. The monotonous gray ground stretches in all directions. Gravel and fist-sized rocks roll underfoot. They crunch, crunch, crunch with each step. It hardly ever rains, but when it does, it comes down hard and fast. With no vegetation to hold it, the surface dirt washes away. What lay hidden the day before is exposed. If it is a fossil that surfaces, and no one finds it, the next rain, or the one after, or the one after that, will wash it away. Knowing this makes the fossil hunters a bit anxious as they crunch, crunch, crunch, up and down the gullies cut from rushing rainwater. They walk a bit stooped, searching—always searching. There's a spot in the middle of the Afar desert along a muddy slow-moving river called the Awash that is



Donald Johanson (left), an anthropologist, and Bob Walter, a geologist, use a map and compass to pinpoint their position in the desert at Hadar, Ethiopia.

a favorite of the anthropologist Donald Johanson. If ever there were a case for “right time, right place,” this is it. The time was November 30, 1974. The place was Hadar.

Donald Johanson woke to the smell of fresh coffee perking. He could hear the Afar tribesmen who worked for the expedition tending their goats and camels. The day had begun.

Tom Gray joined his teacher, Johanson, for coffee. Gray had come to Hadar to study plant and animal fossils. He was piecing together a picture of ancient climates from life millions of years ago. Gray had hoped to get a look at Locality 162, but wasn't sure where that particular site was among the hundreds on the master map. Johanson was behind on his homework and hesitated, but something—something stemming from that fossil hunter's anxiety—urged him to take Gray out to Locality 162.

They parked their vehicle on the slope of a gully and for the next several hours Johanson and Gray walked a methodical grid—back and forth—coming at the same place from different angles—scanning the ground—back and forth—back and forth—searching. The desert temperature rose to 110 degrees—back and forth they crunched. They'd found bits and pieces—some antelope teeth, a chunk of a monkey's jaw, the skull of an extinct horse. The heat had finally worn them out and they decided to head back to their vehicle. Johanson writes in *Lucy: The Beginnings of Humankind* that he suggested, “Let's go back this way and survey the bottom of that little gully over there.”

Once in the gully they realized there was nothing of much interest. Hot, tired, and hungry, they started up the slope. Partway up Johanson noticed a bone. With a calm he was not feeling he said, “That's a bit of a hominid arm.” When they bent to examine it, Johanson spotted the back of a skull, then a leg bone, then a backbone, then a pelvis. . . . Johanson writes, “An unbelievable . . . thought flickered through my mind. Suppose all

## HADAR

Hadar is an area of about 50 square miles in the Awash Valley of northeastern Ethiopia. Many fossils in Hadar are eroding out of sediments that are between about 4 and 2.5 million years old.

66 Horse jaw, Middle Awash Valley, Ethiopia, 3.2 million years ago



This fossilized jaw of a horse was discovered at Hadar. The enamel on the teeth, glinting in the sunlight, is not worn down because this horse died when it was still young.

66 *Australopithecus afarensis* bones, Hadar, Ethiopia, 3.2 million years ago



these fitted together? Could they be parts of a single, extremely primitive skeleton? No such skeleton had ever been found—anywhere.”

They found bone after hominid bone. The two men jumped up and down, hugging and shouting, “I can’t believe it! I can’t believe it!” The crunch, crunch, crunch underfoot stopped them both. There were pieces of skeleton all around them. Before they damaged something, they marked the spot and returned to camp, skidding in and honking the horn wildly.

For three weeks every scientist and tribesman in camp worked that gully—even the small children helped out. When it was all over they had recovered hundreds of bones—some barely bits. There were no duplicates. Sometimes you find a piece of a right arm, then a piece of another right arm. Not in this gully. The bones came from one individual. Johanson and his team had nearly 40 percent of the skeleton—40 percent of something that had lived 3.18 million years ago. It was incredible that so much of it had stayed together that long. Once the fossils surfaced, it was only a matter of a few rainstorms before the fossils would have been swept away, jumbled and lost. No wonder anthropologists are anxious.

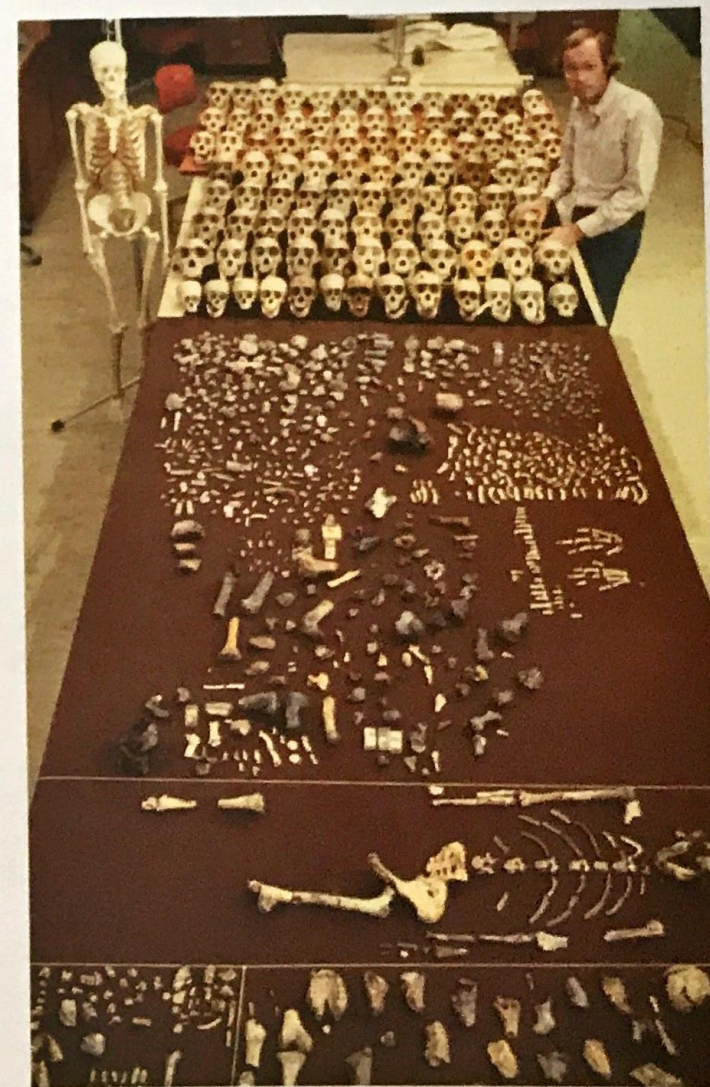
That night at camp it was party time. Everyone was too excited to sleep. Someone put on a Beatles tape and blasted “Lucy in the Sky with Diamonds” over and over and over. Johanson doesn’t remember exactly when during the night it happened, or who started it, but suddenly everyone was calling the skeleton Lucy. And as nicknames often do, it stuck. She has a lovely Ethiopian name, Dinqinesh, which means “thou art wonderful,” and wonderful she is, but to the world she would soon be known as Lucy.

Lucy didn’t look much like a human being. For one thing, she was small. She was a full-grown adult, but stood only about three and a half feet tall, and her head wasn’t much bigger than a softball. Johanson writes in *Lucy*, “On the hominid line the earliest ones are too primitive to be called humans. They must be given another name. Lucy is in that category.” What would Johanson call her?

The next field season Johanson got lucky again. This time he found not one individual, but what he described as a “cascade of bones,” so many that they appeared to be pouring from the hillside. Remains of at least 13 individuals were scattered down the slope. The skeletons were like Lucy, but bigger—males, females, infants, and juveniles—the First Family. It appeared as if the entire group had died together. Had a flash flood trapped them? This was just one of many questions Johanson would lose sleep over.

He kept returning to the dilemma of what to call Lucy—and now the question became what to call “them.” They would have to have a scientific name. Scientists the world over use Latin names to classify members of the plant and animal kingdom. What would they call Lucy? Lucy was a hominid, so it was clear to Johanson that she belonged in the same family as humans, *Hominidae*. But what about her genus? Her species? Was she *Homo*—a member of our own genus? Or was she *Australopithecus*—our hominid cousin? There was only one way to answer that question, and the work involved would take years to accomplish. Each of the hundreds of fossils had to be carefully cleaned. Then countless measurements taken and recorded in notebook after notebook. All these tasks had to be completed before Johanson could even begin to answer the question of what place the Hadar hominids would take in our evolutionary history.

66 *Australopithecus afarensis* bones, Hadar, Ethiopia, 3.5–3 million years ago



Paleoanthropologist Tim White stands beside a collection of chimpanzee skulls and the fossils of *Australopithecus afarensis* discovered at Hadar and Laetoli. The fossils include Lucy, who appears as a partial skeleton near the bottom of the photo.

“When Don showed me the first knee joint, I told him to go back and find me a whole animal. He obliged with Lucy. So I told him to go back again and get me some variety. The next year he found Mom and Pop and the kids.”

—Anthropologist C. Owen Lovejoy,  
*Lucy: The Beginning of Humankind*, 1981

After cleaning, organizing, and measuring, Johanson could no longer avoid addressing what Lucy's scientific name should be. He writes in *Lucy*, “Alone in my office one night in the basement of the Cleveland Museum, I got out all the jaws and lined them up on the table.” Johanson recalls that in the solitude of his lab, he “stared at the jaws, at the rows of pearly gray teeth, the rough brown jawbones. Sitting there, unlabeled, unidentified, they seemed to mock me. ‘What are we?’ they whispered. ‘We are three million years old.’ . . . I had found them. Now what was I going to do with them?”

So what scientific name did Johanson finally give Lucy? She is officially known as a member of the species *Australopithecus afarensis*, named after the region where Johanson had found her—the Afar Triangle.

The Afar is a desert today, but millions of years ago it was a grassland with lakes, and, as it turns out, home to many hominids other than Lucy. Luck may play a part in finding those hominids, but as most paleoanthropologists know, it's really about hard work. Paleoanthropologist Tim White is no stranger to the physical demands in the field and the mental demands in the lab. His efforts in the Afar gave us a surprise—literally. White and his colleagues found several fossils during expeditions in the Middle Awash region of Ethiopia in the 1990s that belong to a different species of hominid from Lucy. White named this hominid find from 2.5 million years ago *Australopithecus*

#### OUR COUSINS

Thousands of fossil hominid bones and teeth found in several African countries, as well as the hominids who made the Laetoli footprints, belong in the genus *Australopithecus*. “*Australopithecus*” comes from the Latin word “*Australis*,” meaning “southern,” and the Greek word “*Pithekos*,” meaning “ape.” However, this “southern ape,” which was first found in South Africa, is not an ape, but a hominid.

*garhi*. “Garhi” means surprise in the Afar language. But to many scholars this discovery was no surprise.

They were expecting to find many different species of hominids living during this period. In fact, scholars will not be surprised to find more. What they weren't expecting to find were butchered antelope bones nearby. Here was the earliest evidence of toolmaking, meat-eating hominids. The bones of the antelope not only showed cut marks from tools, but had also been bashed with hammerstones to get at the **marrow** inside. White said, “All of a sudden this is a bipedal primate with a difference.”

The discovery of *garhi* provided a piece to the puzzle from between 2 and 3 million years ago. White said, “You go into this period with, in essence, bipedal big-toothed chimps and come out with meat-eating large-brained hominids. That's a big change in a relatively short time. We'd really like to know more about what happened there.” *Garhi* bridges the gap. How many other hominids do? With a lot of hard work, and perhaps a little luck, maybe we'll find more members of the family bush.



66 *Australopithecus garhi* skull, Middle Awash Valley, Ethiopia, 2.5 million years ago

Marrow is the soft, fatty material contained in the cavities of bones.

#### WHAT'S FOR LUNCH?

By studying Lucy's teeth and those of other hominids of her species, scientists have learned that they were primarily vegetarians. They ate seeds, nuts, berries, fruit, roots, tubers, and flowers. Their occasional protein snack probably came from bugs, lizards, and snakes.

