

Lucy's Legacy: The Quest For Human Origins

By Donald C. Johanson
with Kate Wong

Chapter 1: The Woman Who Shook Up Man's Family Tree

Never in my wildest fantasies did I imagine that I would discover a fossil as earthshaking as Lucy. When I was a teenager, I dreamed of traveling to Africa and finding a "missing link." Lucy is that and more: a 3.2-million-year-old skeleton who has become the spokeswoman for human evolution. She is perhaps the best known and most studied fossil hominid of the twentieth century, the benchmark by which other discoveries of human ancestors are judged.

Whenever I tell the story, I am instantly transported back to the thrilling moment when I first saw her thirty-four years ago on the sandy slopes of Hadar in Ethiopia's Afar region. I can feel the searing, noonday sun beating down on my shoulders, the beads of sweat on my forehead, the dryness of my mouth--and then the shock of seeing a small fragment of bone lying inconspicuously on the ground. Most dedicated fossil hunters spend the majority of their lives in the field without finding anything remarkable, and there I was, a thirty-one-year-old newly minted Ph.D., staring at my childhood dream at my feet.

Sunday, November 24, 1974, began, as it usually does for me in the field, at dawn. I had slept well in my tent, with the glittering stars visible through the small screen that kept out the mosquitoes, and as sunrise announced a brilliant new day, I got up and went to the dining tent for a cup of thick, black Ethiopian coffee. Listening to the morning sounds of camp life, I planned with some disinclination the day's activities: catching up on correspondence, fossil cataloging, and a million other tasks that had been set aside to accommodate a visit from anthropologists Richard and Mary Leakey. I looked up as Tom Gray, my grad student, appeared.

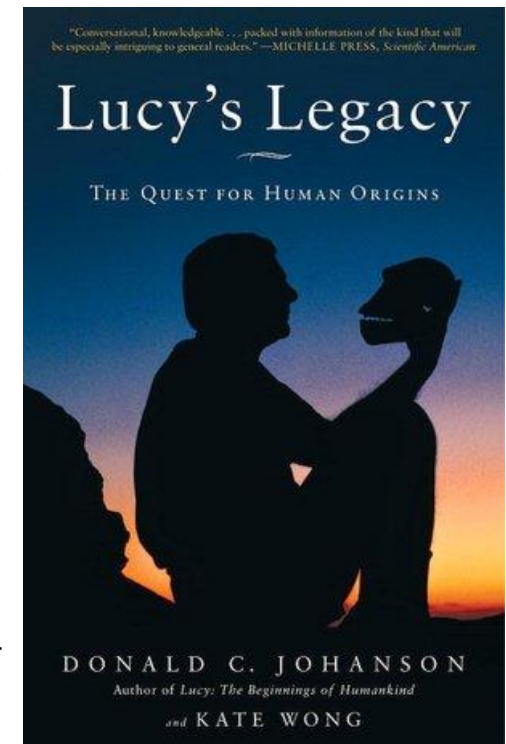
"I'm plotting the fossil localities on the Hadar map," he said. "Can you show me Afar Locality 162, where the pig skull was found last year?"

"I have a ton of paperwork and am not sure I want to leave camp today."

"Can you do the paperwork later?"

"Even if I start it now I'll be doing it later," I grumbled. But something inside--a gut sense that I had learned to heed--said I should put the paperwork aside and head to the outcrops with Tom.

A couple of geologists joined us in one of our old, dilapidated Land Rovers, and in a cloud of dust we headed out to the field. I sat in the passenger seat enjoying the passing landscape peppered with animal fossils. Flocks of quacking guinea fowl ran for cover, and a giant warthog, annoyed by our intrusion, hurried off, its tail straight up in the air. Unlike many mammals that had been hunted to extinction in the area, the Hadar warthogs were left alone by the Afar locals, whose Islamic faith forbade eating pork. Tom put the Land Rover through its paces, and as we picked up speed in the sandy washes, my mind switched gears into fossil-finding mode. After we dropped off the geologists, who needed to inspect an important



geological fault that had disturbed the sedimentary layers near Locality 162, Tom and I threaded our way along smaller and smaller gullies.

"Somewhere around here," I said. "Pull over." Then I laughed as it occurred to me that in the remote desert you don't have to pull over, you just stop driving. We got out and spent a few minutes locating the cairn that had been left to mark the pig skull's locality, a little plateau of clay and silt sediments bordered by harder layers of sandstone. A year earlier, a geologist had been out on a mapping mission and the plateau was obvious on the aerial photographs we had toted along; otherwise we might have overlooked it. After carefully piercing a pinhole into the aerial photo to mark the spot and labeling it "162" on the reverse side, we lingered. I was reluctant to return to camp and my paperwork. Even though the area was known to be fossil poor, we decided to look around while we were there. But after two hours of hunting all we had to show were some unremarkable fossil antelope and horse teeth, a bit of a pig skull, and a fragment of monkey jaw.

"I've had it. When do we head back?" Tom said.

"Right now." With my gaze still glued to the ground, I cut across the midportion of the plateau toward the Land Rover. Then a glint caught my eye, and when I turned my head I saw a two-inch-long, light brownish gray fossil fragment shaped like a wrench, which my knowledge of osteology told me instantly was part of an elbow. I knelt and picked it up for closer inspection. As I examined it, an image clicked into my brain and a subconscious template announced hominid. (The term hominid is used throughout this book to refer to the group of creatures in the human lineage since it diverged from that of chimpanzees. Some other scholars employ the word hominin in its place.) The only other thing it could have been was monkey, but it lacked the telltale flare on the back that characterizes monkey elbows. Without a doubt, this was the elbow end of a hominid ulna, the larger of the two bones in the forearm. Raising my eyes, I scanned the immediate surroundings and spotted other bone fragments of similar color--a piece of thighbone, rib fragments, segments of the backbone, and, most important, a shard of skull vault.

"Tom, look!" I showed him the ulna, then pointed at the fragments. Like me, he dropped to a crouch. With his jaw hanging open, he picked

up a chunk of mandible that he wordlessly held out for me to see. "Hominid!" I gushed. "All hominid!" Our excitement mounted as we examined every splinter of bone. "I don't believe this! Do you believe this?" we shouted over and over. Drenched in sweat, we hugged each other and whooped like madmen.

"I'm going to bring the ulna to camp," I said. "We'll come back for the others." I wanted to mark the exact location of each bone fragment scattered on the landscape, but there were too many pieces and time was short.

"Good idea. Don't lose it," Tom joked, as I carefully wrapped the ulna in my bandanna. I decided to take a fragment of lower jaw, too, for good measure. I marked the exact spots where the bones had lain, scribbled a few words in my field notebook, and then got back into the Land Rover.

The two geologists relaxing in the shade of a small acacia tree looked relieved when we drove up to rescue them from the stultifying heat. As they stood and greeted us, they could tell from our giddy grins that we'd found something.

"Feast your eyes!" I said, and opened the bandanna. I held the ulna next to my elbow. Being geologists, they didn't know a lot about bones, but they understood the importance of the find. Back into the bandanna the bones went, and then into my khaki hat for the trip to camp in the safety of my lap. Thirty minutes later Tom announced our arrival by honking the horn, and as we pulled to a stop our inquisitive teammates surrounded the car.

I jumped out of the Land Rover and everyone followed me to the work area, where a large tent fly protected our plywood work tables. Still in a state of semidisbelief, I sat and unpacked the precious remains. Reassured that they were in fact real, I sighed with relief. Everyone leaned over to see the tiny fragments of arm and jaw. The questions came fast and furious. Is there more? Where'd you find it? How did you find it? And then there was a stunned silence as the import of what we'd found sunk in. It hit me that if I had walked just a few more paces and looked to my left rather than my right, the bones would still be there on the slope. And in the ever-changing landscape of the Afar, a single desert thunderstorm could have washed them off the plateau, over a cliff and into oblivion, forever.

Suddenly someone slapped me on the back and exhilaration replaced awe. We all started talking at once, and we had to keep raising our voices to be heard so that eventually no one could hear what anyone else was saying. A hurried lunch followed and then everyone wanted to see the spot where I had found the ulna. At the locality my colleagues stood back as I carefully pointed to the bone fragments on the slope. Immediately my team understood that what they were looking at was a partial hominid skeleton. It was a special moment for all of us, though I don't think any of us truly realized how special at the time.

We celebrated the discovery with a delicious dinner of roasted goat and panfried potatoes washed down with a case of Bati beer my students had somehow managed to smuggle into camp. Conversation became less animated and more technical, focusing on morphology and size. I felt from the beginning that the fossils belonged to a single individual because there was no duplication of parts in the remains we collected; the pieces all had the same proportions and exhibited the same fossilization color. I further argued that the skeleton was a female specimen of *Australopithecus*--a primitive human forebear--because of the small size of the bones relative to those of other australopithecines. All australopithecines were sexually dimorphic, which is to say males and females exhibited physical differences beyond those pertaining to the sex organs. So if the lightly built ulna we discovered were from a male, then a female would have to be unbelievably tiny.

While we were all talking, Sgt. Pepper's Lonely Hearts Club Band was playing on a small Sony tape deck. When "Lucy in the Sky with Diamonds" came on, my girlfriend Pamela Alderman, who had come to spend some time in the field with me, said, "Why don't you call her Lucy?" I smiled politely at the suggestion, but I didn't like it because I thought it was frivolous to refer to such an important find simply as Lucy. Nicknaming hominid fossils was not unheard of, however. Mary and Louis Leakey, giants in the field of paleoanthropology, dubbed a flattened hominid skull found in Tanzania's Olduvai Gorge "Twiggy," and a specimen their son Jonathan found received the moniker "Jonny's Child." But most of the scientists I knew wouldn't give their

fossils a cute name based on a song by the Beatles. The next morning, however, everyone wanted to know if we were going to the Lucy site. Someone asked how tall Lucy was. Another inquired how old I thought Lucy was when she died. As I sat there eating my breakfast of peanut butter and jelly on toast, I conceded that the name Lucy had a better ring to it than A.L. 288, the locality number that had been assigned to the site.

At my request, the government representative from the Antiquities Administration who had escorted our expedition sent word to the director general of the Ministry of Culture, Bekele Negussie. He arrived a few days later with some of his colleagues. While I answered their questions, I resisted referring to our australopithecine as Lucy because I was uncomfortable about an Ethiopian fossil bearing an English name. When the team returned that afternoon from the site bursting with news of more Lucy fragments, additional information about Lucy, endless speculations about Lucy, my discomfort grew. After dinner Bekele and I sat outside the dining tent looking up at a brilliant starlit sky. I talked about the implications of the discovery, how it might impact prevailing theories about hominid evolution. And we discussed arrangements for a press announcement in Addis Ababa in December.

He listened in silence, then regarded me very seriously and said, "You know, she is an Ethiopian. She needs an Ethiopian name."

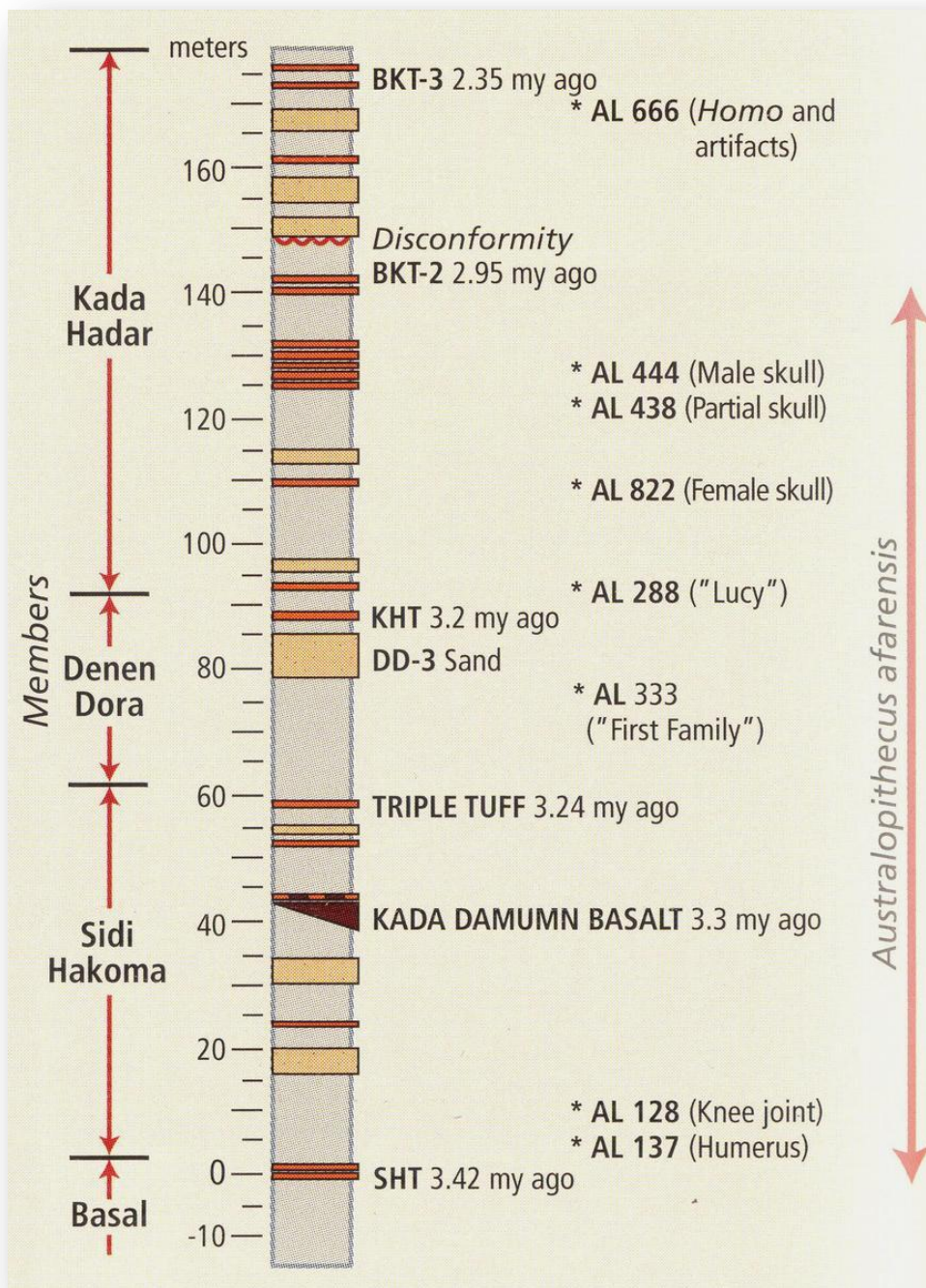
"Yes!" I agreed, relieved. "What do you suggest?"

"Dinkinesh is the perfect name for her."

I mentally inventoried my Amharic vocabulary, which was just enough to shop for basics, greet people, ask directions, and, most important, order a cup of the best coffee in the world. The word Dinkinesh wasn't there. "What does it mean?"

With a broad smile, as if he were naming his own child, he answered, "Dinkinesh means 'you are marvelous.'"

He was right, it was the perfect name. Of course, today most of the world, including nearly every Ethiopian I have spoken to, calls her Lucy. And Lucy is the name that has appeared in crossword puzzles, on Jeopardy!, in cartoons, and on African Red Bush Tazo tea bags. In



Above: Stratigraphy of the Hadar formation

Ethiopia she has lent her name to numerous coffee shops, a rock band, a typing school, a fruit juice bar, and a political magazine. There is even an annual Lucy Cup soccer competition in Addis Ababa. Once, while driving through the town of Kombolcha on the way back to Addis after a field season, years after the discovery, I spotted a small sign that said LUSSY BAR. I brought the car to a screeching halt and my colleagues and I went in to have a beer. When we asked the proprietress how the place got its name, she explained in a solemn voice that many years ago a young American found a skeleton named Lucy in the Afar region, and that she took great pride in naming her bar after the fossil that proved Ethiopia's status as the original homeland to all people. With a grin, I told her I was the American who had found Lucy. She shrieked in delight and insisted that we have our picture taken together to mount on the wall. I sent the photo to her, and for all I know, it hangs there still. But sometimes I still think of Lucy as Dinkinesh, because she truly is marvelous.