Newsweek

All In The Family

Scientists Find the Oldest Fossil of a Human Ancestor Ever-A 7 Million-Year-Old Skull That Is Shaking Up Theories of Human Origins

By Fred GUTERL

Ahounta Djimdoumalbaye awoke before sunrise with his three fellow hunters. It was July 19, 2001, and they had driven nine days through the Djourab desert, a vast, primordial desolation in the central African country of Chad where renegade former soldiers roam in search of plunder, and daytime temperatures would clock 136 in the shade--if any existed. The previous day, the party had reached its destination--a site dubbed TM266--and at dusk had viewed a flat stretch of land covered with the objects of their hunt: ancient fossils. Now, after sleeping on cots downwind of their pickup trucks to protect themselves from blowing sand, they began their search in the relatively frigid 90-degree dawn, looking less like academics than extras in a "Mad Max" sequel.

Of the three Chadians and one Frenchman in the party, Djimdoumalbaye, 31, was the acknowledged master of fossil spotting. "You have to be curious, and touch everything that lies on the ground," he told NEWSWEEK. "If there's a crust, it's possible there's a bone inside." The normal routine is to use a broom of twigs to sweep sand into shovels and sift it through mesh. But this morning he didn't need the broom. "I saw a crust with two rows of teeth," he says. "It was all black, and at first sight I thought it was a pig's jaw. Then I turned it over, and I saw the eye sockets, and I thought, 'That's what we're looking for'."

And more. What the fossil hunters, who were working under the eccentric paleontologist Michel Brunet of the University of Poitiers, found was a skull that has not only made history, but thrust history back a couple of million years. What at first looked like a pig's jaw is now known as *Sahelanthropus tchadensis*, nicknamed "Toumai": "hope of life" in the Goran language.

Revealed last week in the journal *Nature*, Toumai's wonders, as well as its mysteries, begin with its age: approximately 7 million years old, it's the oldest fossil of a hominid, or human ancestor, by more than a million years. (The nearest skull is a relative ingenue at 2.5 million years old.) But what has paleontologists agog is this googol-granddaddy's precocious attributes: most notably the relative flatness of its face, which is more modern-looking than skulls half its age. "This is the most spectacular discovery in 70 years," says Harvard paleontologist Daniel Lieberman. "It's probably as close to the common ancestor of chimps and humans as we'll ever see."

Or maybe it's not our ancestor at all, but some star-crossed evolutionary line that was far ahead of its time. While paleontologists agree that chimps and *Homo sapiens* share a common ancestor, there's debate on just how straight the path was from that ancestor to humans. Instead of the transformation illustrated in 1950s textbooks, with a neat progression of chimp to stoop-shouldered caveman to Tony Curtis, many paleontologists believe prehumans emerged in a number of different lines, with all but ours dying out. By this view the way to chart human evolution is not by a tree but a complex bush. "Maybe [Toumai] is an indication that there were lots of different species of hominid that were reproductively isolated," says Don Johanson, a "bushy" theorist who discovered the 3 million-year-old "Lucy" bones in 1974. "They all went in their own directions.

By this theory, previous celebrated finds like Lucy (who walked upright but had a chimplike snout) or the 2 million-year-old *Homo habilis* (strong brow ridges and a flat face) can't ever be placed in a serial progression, but were all candidates in the ultimate game of "Survivor." Not everybody buys into this bushy theory. "It's 'X-Files' paleontology" with no supporting evidence, says fossil hunter Tim White of the University of California, Berkeley.

In any case, Brunet's amazing find gives us plenty to consider. The skull is nearly

complete--itself something of a miracle. Although Toumai's brain was about the size of a modern-day chimpanzee's, its face is quite flat, a classically human trait. Unlike chimps, it sports a large brow and small canines. And even though Brunet's team found no signs of a skeleton, the way the spine connects to the skull leads scientists to think that Toumai may have walked on two feet.

There is one question the Toumai skull does settle. You can stick a fork in the theory that human ancestors loitered in eastern Africa until the last couple million years or so. This "East Side Story" held that prehumans arose after tectonic forces formed the Rift Valley 8 million years ago. While chimps on the western side were fat and happy in their lush forests, their hapless brethren were subjected to an increasingly harsh, dry climate, forcing them to evolve. Toumai shows that the Rift Valley had little to do with how and why hominids evolved. It also means that scientists have to roll back their estimate of when chimps and humans diverged by at least a million years.

For more than 20 years, the 61-year-old Brunet has defied conventional wisdom in seeking hominid fossils in all the supposedly wrong places. After false starts in Pakistan and Cameroon, he settled on Chad. Though now as flat as a dot-com's revenues, millions of years ago the Djourab desert was a huge basin surrounding a freshwater lake teeming with now extinct fish and amphibious mammals. Nearby, creatures vaguely resembling today's giraffes and pigs grazed on grasses and leaves. Just the kind of place prehumans would have loved--if any ever lived there. Brunet believed fervently that they did. "East Side Story said savannah made man," Brunet told NEWSWEEK. "But the oldest are associated with forest fauna."

When Brunet arrived on the scene in 1994, he encountered sand dunes drifting across a hard desert floor, with fossils inlaid like some kind of prehistoric floor tile. One of the richest was TM266, which he explored in 1997--and figured that four years later, the shifting sands might uncover more. Talk about hitting paydirt. "Brunet's work is like looking for a needle in a hundred haystacks," says Jacques Corgin, the French ambassador to Chad. "To find what they found, you need *la baraka* [luck]."

Oddly, it was not until September, two months after his team uncovered the skull, that Brunet himself first laid eyes on Toumai. After his team had unearthed the skull, they wrapped it carefully in toilet paper and headed home. After three days they reached Chad's capital, N'Djamena, and phoned Brunet. The find quickly became the talk of N'Djamena, and the French press caught wind of it. The leak so infuriated the control-freak Brunet that he stayed away for weeks. Ultimately, of course, **he had to venture to Chad to take plaster casts (Toumai itself will remain in his native country),** and begin to address the controversy that a 7 million-year-old hunk of bone generates. But Brunet, with characteristic confidence, claims "no doubt" that his discovery is one of humanity's ancestors, "the oldest human known to now." To confirm this--and resolve some of the increasing mysteries that the residue of a 7 million-year-old creature has stirred--will indeed require *la baraka.*