

Naledi Fossils

# 12 Theories of How We Became Human, and Why They're All Wrong

Killers? Hippies? Toolmakers? Chefs? Scientists have trouble agreeing on the essence of humanity—and when and how we acquired it.

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What a piece of work is man! Everyone agrees on that much. But what exactly is it about *Homo sapiens* that makes us unique among animals, let alone apes, and when and how did our ancestors acquire that certain something? The past century has seen a profusion of theories. Some reveal as much about the time their proponents lived in as they do about human evolution.

**1. We Make Tools:** “It is in *making* tools that man is unique,” anthropologist Kenneth Oakley wrote in [a 1944 article](#). Apes *use* found objects as tools, he explained, “but the shaping of sticks and stones to particular uses was the first recognizably human activity.” In the early 1960s, Louis Leakey attributed the dawn of toolmaking, and thus of humanity, to a species named *Homo habilis* (“Handy Man”), which lived in East Africa around 2.8 million years ago. But as Jane Goodall and other researchers have since shown, chimps also shape sticks for particular uses—stripping them of their leaves, for instance, to “fish” for underground insects. Even crows, which lack hands, are pretty handy.

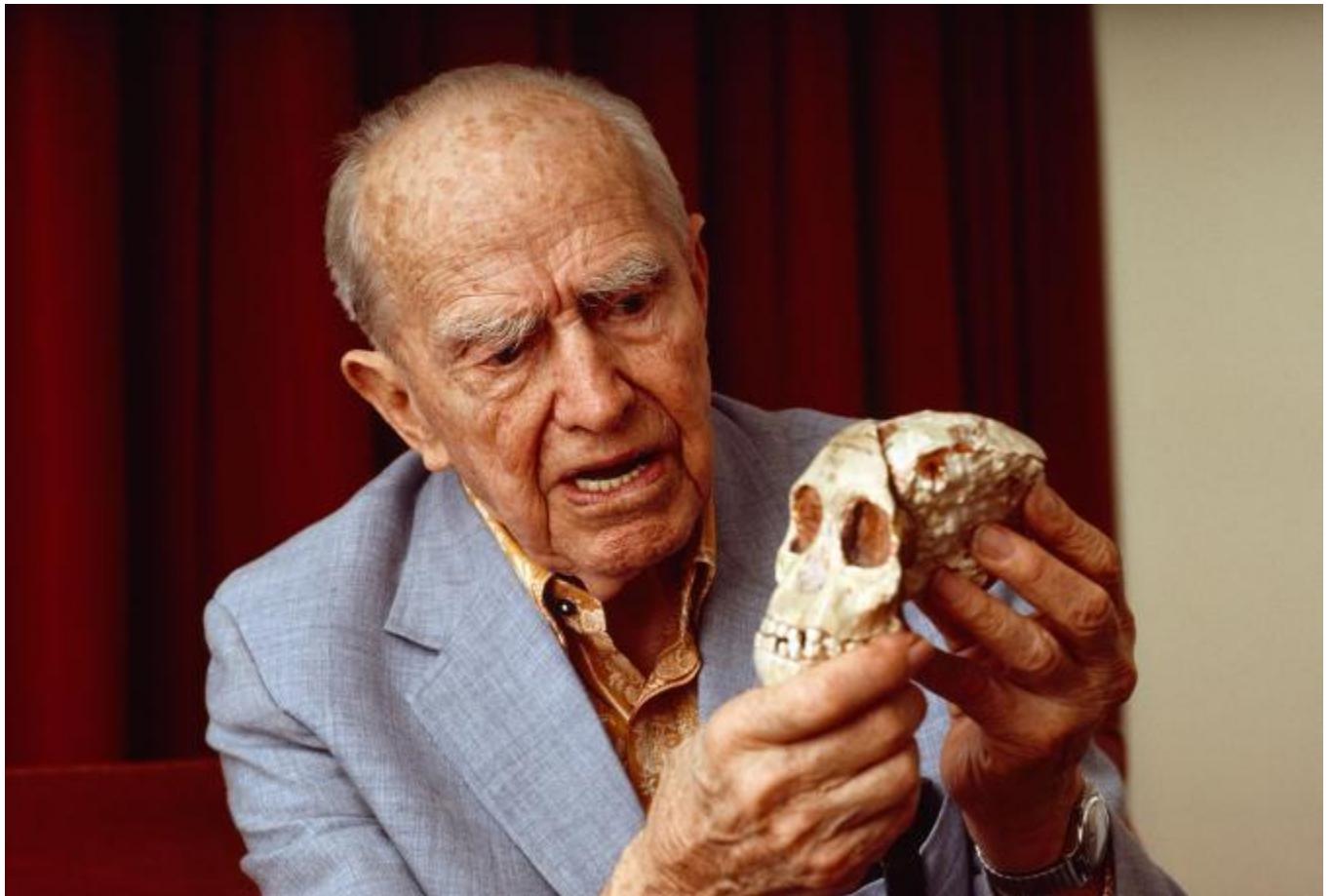


This primitive hand ax, found at a site in Israel, dates from 790,000 years ago and was probably made by *Homo erectus*. The oldest stone tools are 3.3 million years old.

Photograph by Kenneth Garrett, National Geographic

Creative

**2. We're Killers:** According to anthropologist Raymond Dart, our predecessors differed from living apes in being confirmed killers—carnivorous creatures that "seized living quarries by violence, battered them to death, tore apart their broken bodies, dismembered them limb from limb, slaking their ravenous thirst with the hot blood of victims and greedily devouring livid writhing flesh." It may read like pulp fiction now, but after the horrific carnage of the Second World War, Dart's 1953 [article](#) outlining his "killer ape" theory struck a chord.



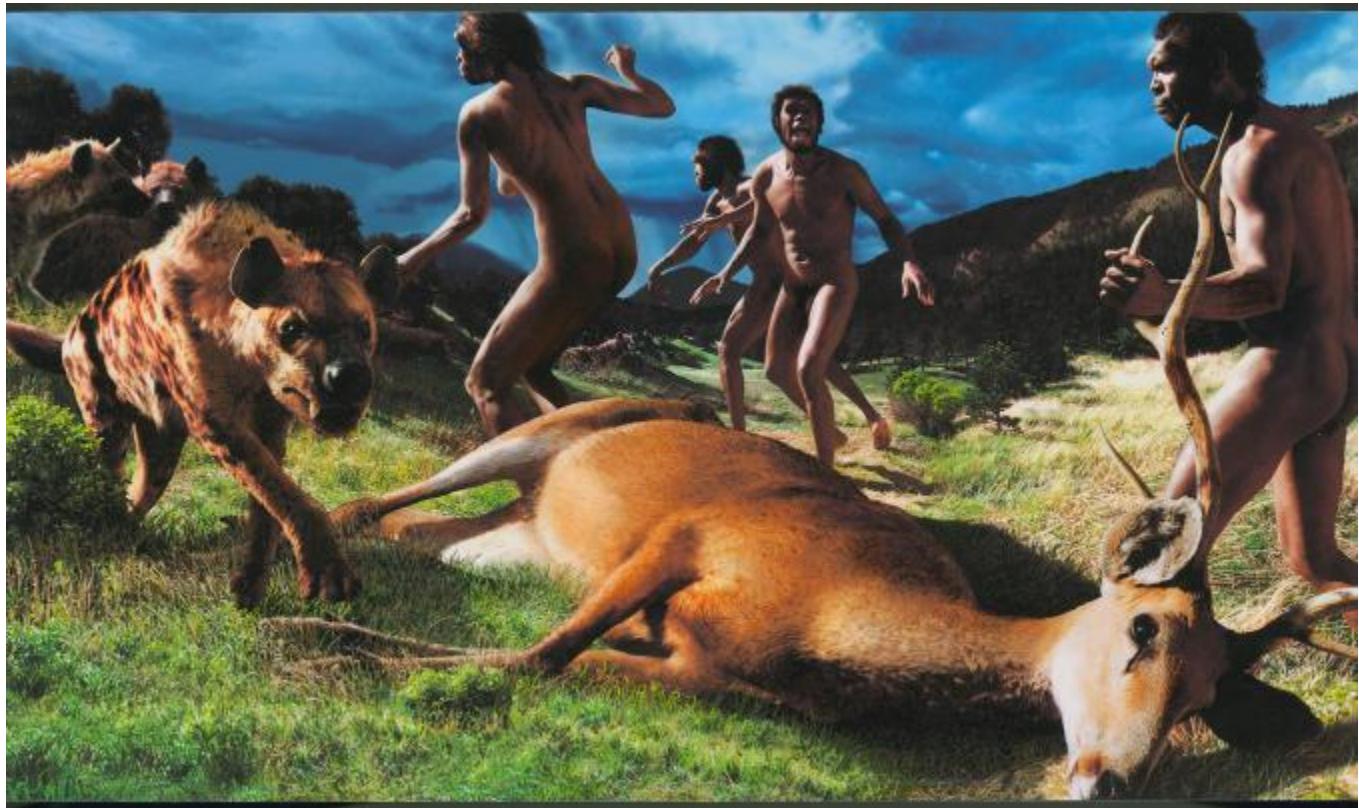
Raymond Dart, originator of the "killer ape" theory of human evolution, holds the skull of the Taung Child, the first australopithecine ever discovered.

Photograph by David L. Brill, National Geographic Creative

**3. We Share Food:** In the 1960s, the killer ape gave way to the hippie ape. Anthropologist [Glynn Isaac](#) unearthed evidence of animal carcasses that had been purposefully moved from the sites of their deaths to locations where, presumably, the meat could be shared with the whole commune. As Isaac saw it, food sharing led to the need to share information about where food could be found—and thus to the development of language and other distinctively human social behaviors.

**4. We Swim in the Nude:** A little later in the age of Aquarius, [Elaine Morgan](#), a TV documentary writer, claimed that humans are so different from other primates because our ancestors evolved in a different environment—near and in the water. Shedding body hair made them faster swimmers, while standing upright enabled them to wade. The “aquatic ape” hypothesis is widely dismissed by the scientific community. But, in 2013, David Attenborough endorsed it.

**5. We Throw Stuff:** Archaeologist Reid Ferring believes our ancestors began to man up when they developed the [ability to hurl stones at high velocities](#). At [Dmanisi](#), a 1.8-million-year-old hominin site in the former Soviet republic of Georgia, Ferring found evidence that *Homo erectus* invented public stonings to drive predators away from their kills. “The Dmanisi people were small,” says Ferring. “This place was filled with big cats. So how did hominins survive? How did they make it all the way from Africa? Rock throwing offers part of the answer.” Stoning animals also socialized us, he argues, because it required a group effort to be successful.



This painting inspired by archaeological finds at Dmanisi, in the Republic of Georgia, shows a female *Homo erectus* preparing to throw a stone to drive hyenas away from a deer carcass.

Photograph by John Gurche, National Geographic Creative

**6. We Hunt:** Hunting did much more than inspire cooperation, anthropologists Sherwood Washburn and C. S. Lancaster argued in a 1968 paper: “In a very real sense

our intellect, interests, emotions and basic social life—all are evolutionary products of the success of the hunting adaptation.” Our larger brains, for instance, developed out of the need to store more information about where and when to find game. Hunting also allegedly led to a division of labor between the sexes, with women doing the foraging. Which raises the question: Why do women have big brains too?

**7. We Trade Food for Sex:** More specifically, monogamous sex. The crucial turning point in human evolution, according to a [theory](#) published in 1981 by C. Owen Lovejoy, was the emergence of monogamy six million years ago. Until then, brutish alpha males who drove off rival suitors had the most sex. Monogamous females, however, favored males who were most adept at providing food and sticking around to help raise junior. Our ancestors began walking upright, according to Lovejoy, because it freed up their hands and allowed them to carry home more groceries.

**8. We Eat (Cooked) Meat:** Big brains are hungry—gray matter requires 20 times more energy than muscle does. They could never have evolved on a vegetarian diet, [some researchers claim](#); instead, our brains grew only once we started eating meat, a food source rich in protein and fat, around two to three million years ago. And according to anthropologist [Richard Wrangham](#), once our ancestors invented cooking—a uniquely human behavior that makes food easier to digest—they wasted less energy chewing or pounding meat and so had even more energy available for their brains. Eventually those brains grew large enough to make the conscious decision to become vegan.



On an elephant that died of natural causes, archaeologists tested how fast they could butcher meat with primitive stone tools. Each man cut a hundred pounds an hour.

Photograph by David L. Brill, National Geographic Creative

**9. We Eat (Cooked) Carbs:** Or maybe our bigger brains were made possible by carb-loading, according to [a recent paper](#). Once our ancestors had invented cooking, tubers and other starchy plants became an excellent source of brain food, more readily available than meat. An enzyme in our saliva called amylase helps break down carbohydrates into the glucose the brain needs. Evolutionary geneticist [Mark G. Thomas](#) of University College London notes that our DNA contains multiple copies of the gene for amylase, suggesting that it—and tubers—helped fuel the explosive growth of the human brain.

**10. We Walk on Two Feet:** Did the crucial turning point in human evolution occur when our ancestors descended from the trees and started walking upright? Proponents of the “savanna hypothesis” say climate change drove that adaptation. As Africa became drier around three million years ago, the forests shrank and savannas came to dominate the landscape. That favored primates who could stand up and see above the tall grasses to watch for predators, and who could travel more efficiently across the open landscape, where food and water sources were far apart. One problem for this hypothesis is the 2009 discovery of [Ardipithecus ramidus](#), a hominid that lived 4.4 million years ago in what’s now Ethiopia. That region was damp and wooded then—yet “Ardi” could walk on two legs.



As the Africa climate became more arid, after about three million years ago, forests gave way to grasslands—and our ancestors had to adapt.

Photograph by Mauricio Anton, National Geographic Creative

**11. We Adapt:** Richard Potts, director of the Smithsonian's Human Origins Program, suggests that human evolution was influenced by [multiple changes](#) in climate rather than a single trend. The emergence of the *Homo* lineage nearly three million years ago, he says, coincided with drastic fluctuations between wet and dry climates. Natural selection favored primates that could cope with constant, unpredictable change, Potts argues: Adaptability itself is the defining characteristic of humans.

**12. We Unite and Conquer:** Anthropologist [Curtis Marean](#) offers a vision of human origins well suited to our globalized age: We are the [ultimate invasive species](#). After tens of thousands of years confined to a single continent, our ancestors colonized the globe. How did they accomplish this feat? The key, Marean says, was a genetic predisposition to cooperate—born not from altruism but from conflict. Primate groups that cooperated gained a competitive edge over rival groups, and their genes survived. “The joining of this unique proclivity to our ancestors’ advanced cognitive abilities enabled them to nimbly adapt to new environments,” Marean writes. “It also fostered innovation, giving rise to a game-changing technology: advanced projectile weapons.”



Projectile weapons made by early *Homo sapiens*, found at Pinnacle Point in South Africa, reflect the human ability to cooperate, according to anthropologist Curtis Marean.

Photograph by Per-Anders Pettersson, Getty Images

### So what's wrong with all these theories?

Many of them have merit, but they share a bias: the idea that humanity can be defined by a single well-defined trait or group of traits and that a single stage in evolution was a crucial turning point on the inevitable road to *Homo sapiens*.

But our ancestors weren't beta tests. They weren't evolving toward something, they were just surviving as *Australopithecus* or *Homo erectus*. And no single trait they acquired was a

turning point, because there was never anything inevitable about the outcome: the toolmaking, stone-throwing, meat-and-potato-eating, highly cooperative, adaptable—and oh-so-big-brained—killer ape that is us. And is still evolving now.