



# THE HUMAN PEDIGREE

Some 180 years after unearthing the first human fossil, paleontologists have amassed a formidable record of our forebears

• • • **BY KATE WONG**

• • • **Illustrations by Viktor Deak**

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hen Charles Darwin wrote *On the Origin of Species*, he pondered the evolution of organisms ranging from orchids to whales. Conspicuously missing from his magnum opus, however, was any substantive discussion of how humans might have arisen. He wrote only “light will be thrown on the origin of man and his history.” Scholars attribute Darwin’s relative silence on this matter to reluctance on his part to further nettle the Victorian establishment (and his pious wife), for whom the origin of all living things—especially humans—was God’s work.

Thomas Henry Huxley, the biologist otherwise known as “Darwin’s bulldog,” had no such reservations. In 1863 Huxley penned *Evidence as to Man’s Place in Nature*, in which he explicitly applied Darwin’s theory of evolution to humans, arguing that we had descended from apes. Eight years later Darwin himself, possibly encouraged by Huxley’s effort, wrote *The Descent of Man*. In it he declared the chimpanzee and gorilla our closest living relatives based on anatomical similarities and predicted that the earliest ancestors of humans would turn up in Africa, where our ape kin live today. At the

time, only a handful of human fossils were known—all of them Neandertals from sites in western Europe.

Since then, abundant evidence from fossils and genetic analyses has validated Darwin’s claims. We now know that our closest living relative is the chimpanzee and that humans arose in Africa between five million and seven million years ago, after our lineage diverged from that of the chimp. We have also learned that for much of human prehistory, our predecessors shared the planet with one or more other hominid species. Indeed, far from being a linear succession of increasingly upright creatures, the human family tree contains many dead branches.

The story of our origins is far from complete. Paleontologists are eager to find fossils of the last common ancestor of chimpanzees and humans, for example. And exactly how, researchers have wondered, was *Homo sapiens* able to outcompete the Neandertals and other archaic humans? Many such mysteries about our collective past persist. Darwin’s insights will no doubt continue to light the way to solving them. ■

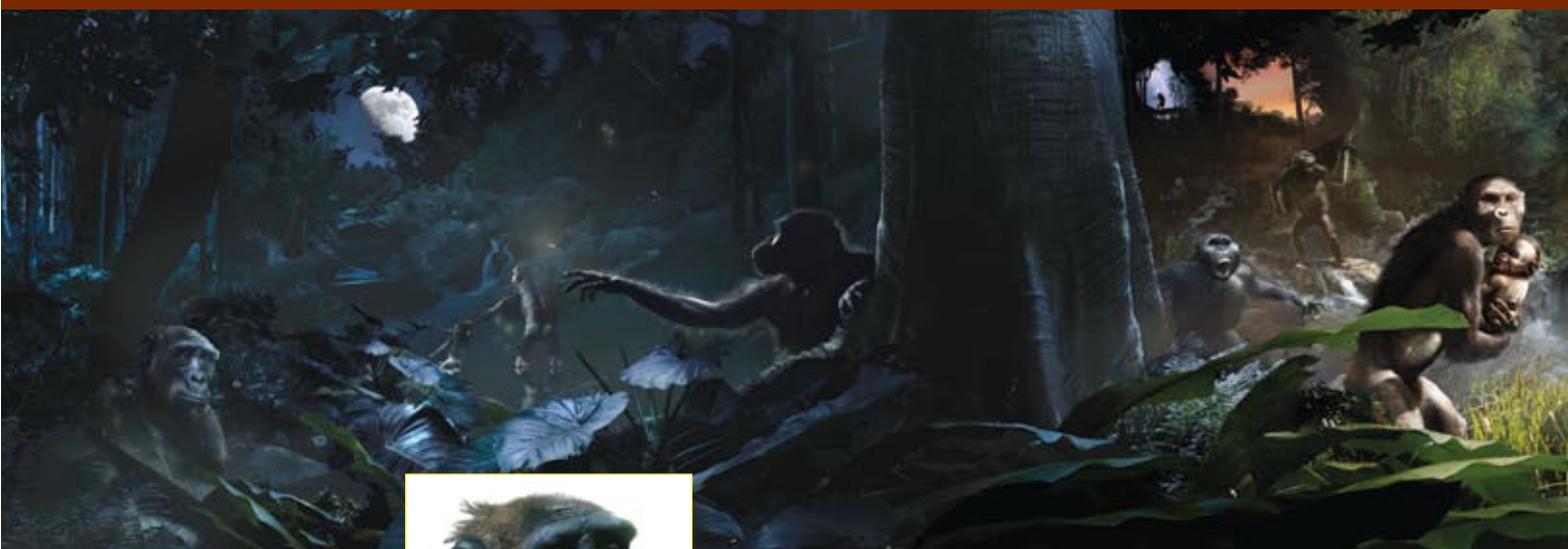
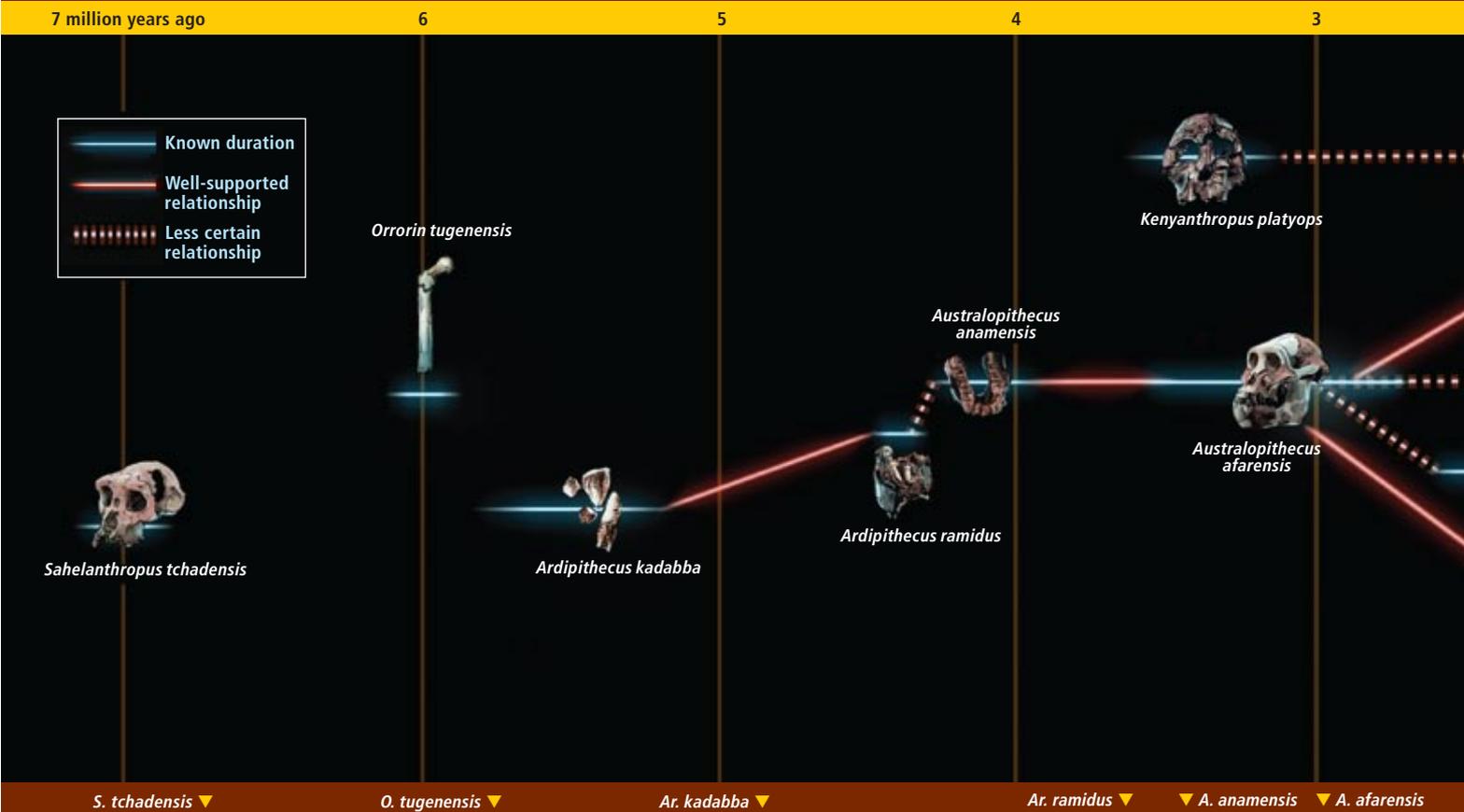
*Kate Wong is a staff writer and editor.*

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**Viktor Deak’s** combination of painting, drawing and sculpture with the latest computer technology produces remarkably photorealistic images of the prehistoric past. Working with anthropologists at the American Museum of Natural History, Deak illustrated *The Last Human: A Field Guide to 23 Species of Extinct Humans*. The award-winning book sold out its first edition. Born in Budapest, Hungary, in 1977, Deak immigrated to America with his parents when he was a child and grew up in the New England suburbs. He lives and works in New York City.

# ○ ○ ○ Skeletons in Our Closet

The tree presented here is one of many interpretations of the hominid fossil record. Some scholars parse the remains into more species; others opt for fewer. And whereas some of the relationships between species are well supported (*red solid lines*), others remain tentative (*red dashed lines*). The accompanying panorama and portraits, for their part, imagine these hominids in the flesh and highlight watershed events in the human odyssey.



## *Sahelanthropus tchadensis*

**First found:** Toros-Menalla, Chad, 2001

**Significance:** The earliest putative hominid

**Open question:** Did this creature walk upright? Thus far only skull and jaw remains have been found, although some researchers believe that details of the base of the skull suggest bipedalism.

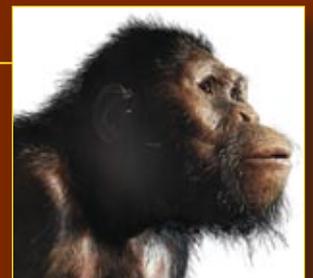


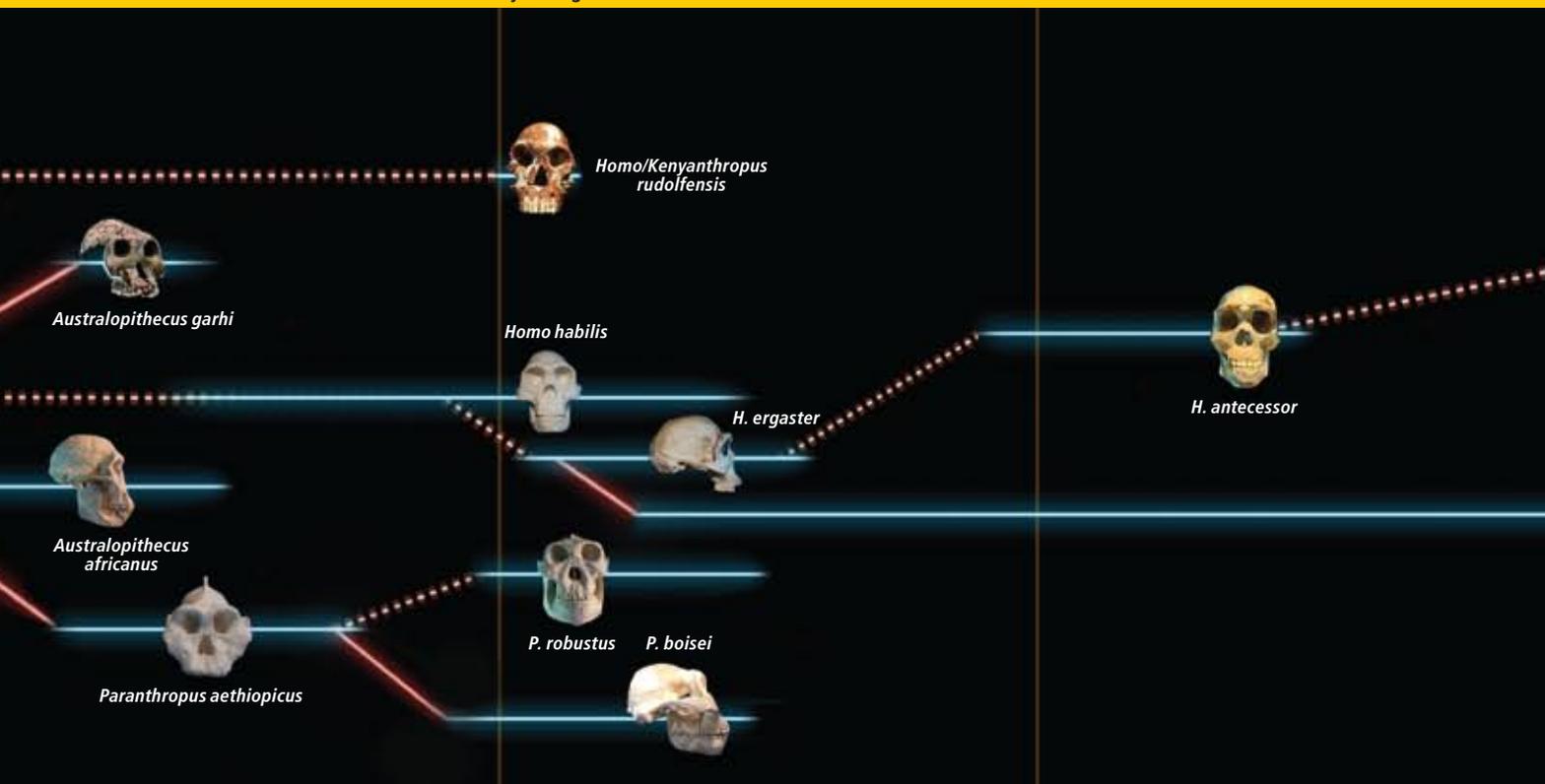
## *Australopithecus afarensis*

**First found:** Hadar, Ethiopia, 1973

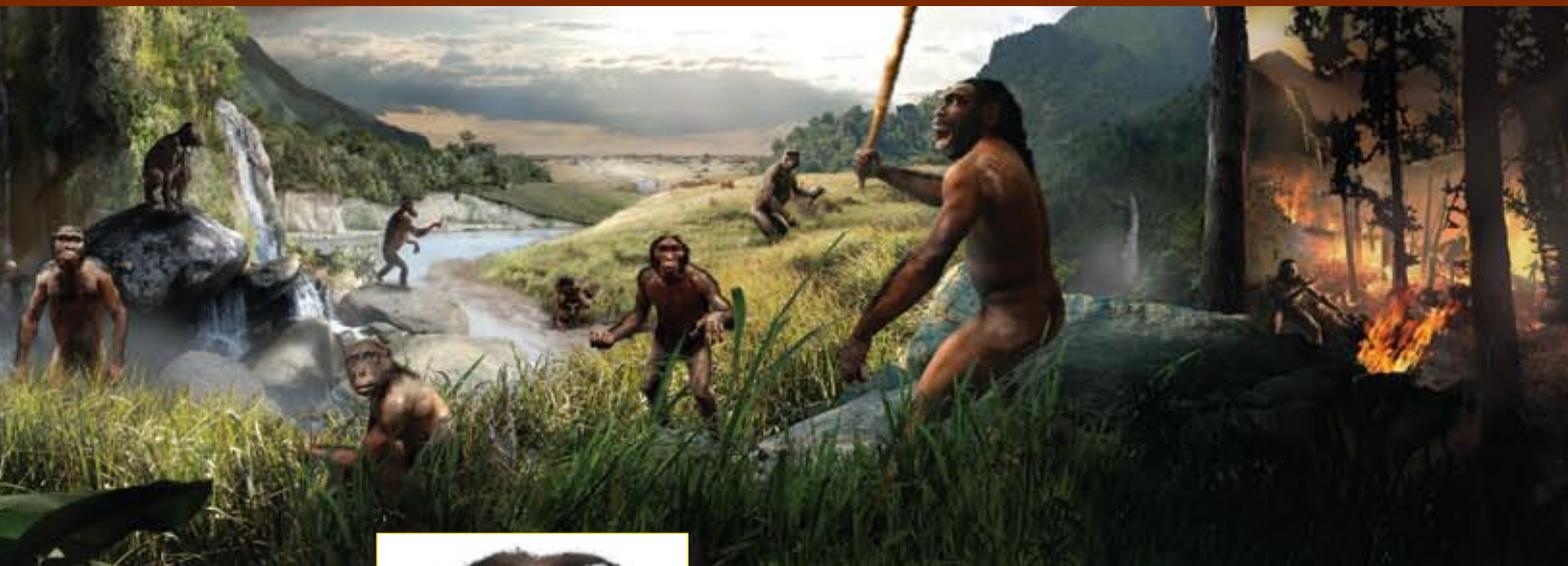
**Significance:** The ancestor of our own genus, *Homo*, as well as the genus *Paranthropus*

**Open question:** Did this hominid have a social structure more like that of humans, chimpanzees or gorillas?





▼ *A. garhi*    ▼ *A. africanus*    ▼ *K. rudolfensis*    ▼ *H. habilis*    ▼ *P. boisei*    ▼ *H. ergaster*    ▼ *H. erectus*



***Homo habilis***

**First found:** Olduvai Gorge, Tanzania, 1962

**Significance:** The first hominid known to have made stone tools

**Open question:** This poorly known species closely resembles *Australopithecus* and might actually belong in that genus instead of in *Homo*.

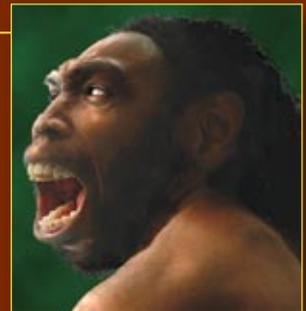


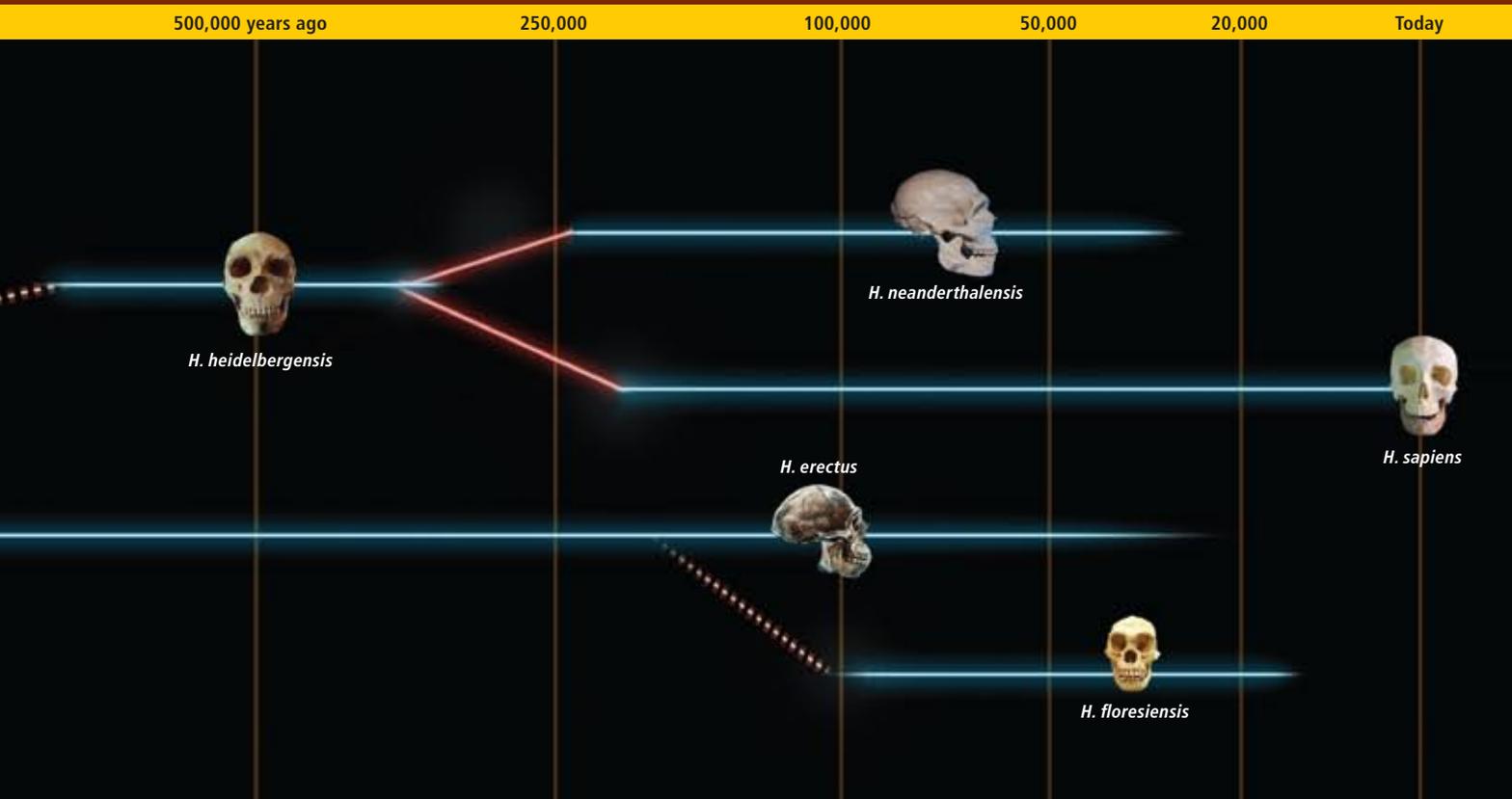
***H. ergaster***

**First found:** Lake Turkana, Kenya, 1971

**Significance:** The first hominid to leave Africa

**Open question:** Experts do not know what finally, some five million years after the dawn of humans, prompted our ancestors to spread out from their natal continent.



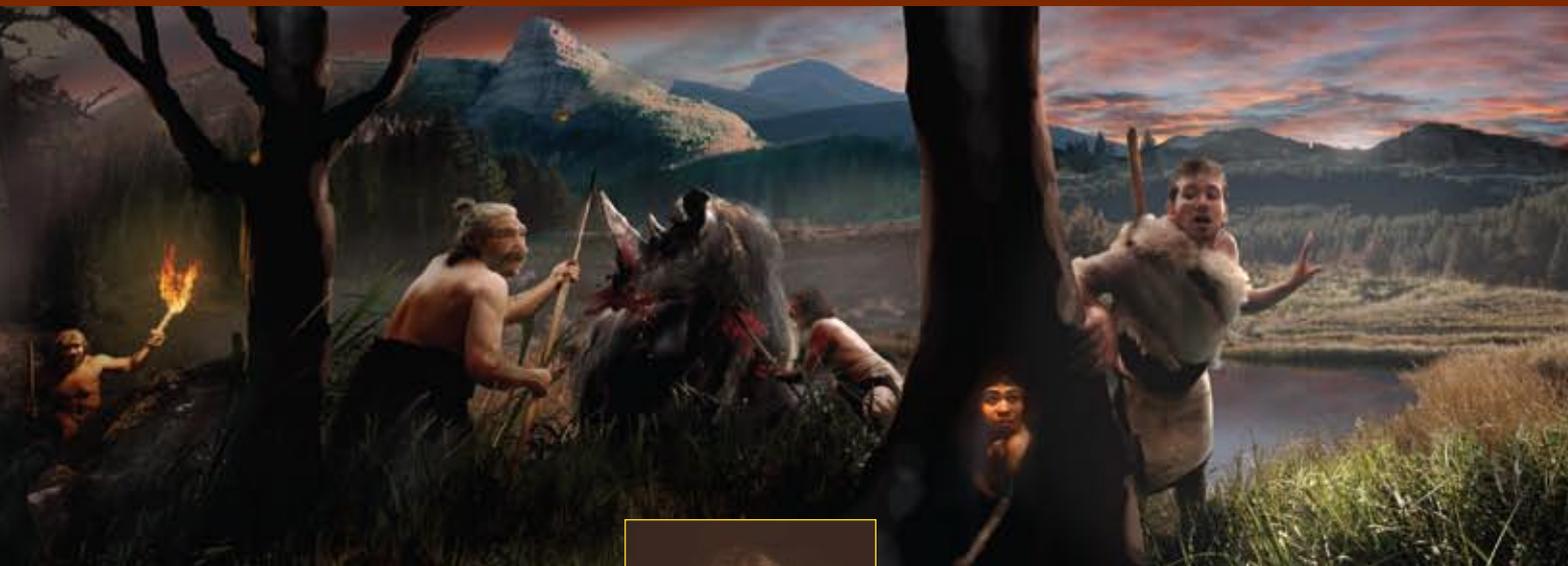


▼ *H. heidelbergensis*

▼ *H. neanderthalensis*

▼ *H. floresiensis*

▼ *H. sapiens*



***H. neanderthalensis***

**First found:** Engis, Belgium, 1829

**Significance:** A big-game hunter that ruled Ice Age Europe and western Asia for nearly 200,000 years

**Open question:** Whether or not they interbred with *H. sapiens* is a topic of debate.



***H. floresiensis***

**First Found:** Flores, Indonesia, 2004

**Significance:** The latest-surviving extinct hominid, with startlingly small brain and body

**Open question:** Who was this hominid's ancestor? A larger-bodied species of *Homo* or something more australopithecine-like?

***H. sapiens***

**First found:** Oldest known fossils discovered in Omo, Ethiopia, 1967

**Significance:** The only hominid to colonize every continent and the first to systematically use symbols

**Open question:** Did *H. sapiens* have the capacity for symbolic thought at its inception, or did this ability arise via a later genetic mutation?