

b42 The Oldowan industry < stone tools, *Homo habilis*, *Paranthropus* >

How dare you use a term such as ‘cultural diversity,’ they [cultural anthropologists] screamed in high dudgeon, to describe what chimpanzees do? Say ‘behavioral variation.’ Apes are mere animals, their lecture continued; people alone possess culture. And only culture—not biology! not evolution!—can explain humanity. —Craig B. Stanford, 2000.¹

The emergence of reflexes was clearly advantageous, and they have gradually become more sophisticated during phylogeny. I believe that the ultimate evolutionary development has been the ontogenetic acquisition of novel context-specific reflexes by individual members of a species, a capacity probably possessed by all mammals and perhaps also by birds. This requires discrimination between self-provoked and unprovoked sensory signals, and simultaneous monitoring of the significance of the former for the body. ... these conditions are tantamount to requiring that the creature be conscious, thought being the covert simulation of a creature’s interactions with the environment. According to this theory, intelligence is the ability to consolidate elementary movements into more complex movement patterns, and creativity is the capacity for exploring novel consolidations. —Rodney Michael John Cotterill, 2003.²

Open the pod-bay doors Hal. —astronaut Dave.

I’m sorry Dave, I can’t do that. —spacecraft onboard computer.³

Before our species *Homo sapiens*, an extinct species *Homo erectus* is inferred from its bones among them to have been a stone tool maker. Animals other than humans also make tools (*see* Topic b43) but not of worked stone. The most ancient stone tools are found in Africa. The oldest date two and a half million years old.

1.3 million year old stone tools were found by Louis and Mary Leakey at Olduvai (means *the place of the wild sisal* in Masai) Gorge, Tanzania. The tools, typically rounded cobbles with a few flakes knocked off one end, had been left behind amid elephant bones at a butchering sites preserved in “Bed I.” For these “Oldowan choppers,” the Leakeys coined the name “Oldowan industry.” (Archaeologists use the term “industry” when they refer to distinctive collections of stone tools.)

The Oldowan industry lasted for a million years. During that time there was little innovation. As to rock composition, the stones differ from site to site by what was conveniently at hand. Similar industries (elsewhere called “pebble industries”) are younger in China, Hungary, and South Africa.

Who was the tool maker?

The first hominid found at Oldovai in Bed I (by Mary Leaky in 1959 after 30 years of finding stone tools and butchered animals) was a tall, small brained, massive jawed, broad-molared vegetarian (by inference, but, more likely, an omnivore with these a survival dentition for lean-times brittle foods such as seeds⁴) that (with a laurel to money-bags Charles Boise and referencing the Arabic name for the geographic area) the Leakeys called *Zinjanthropus boisei*, East African man (since reclassified as *Australopithecus boisei*⁵ or *Australopithecus robustus* and by some as *Paranthropus boisei*⁶). This was the tool maker?

In 1961, Louise Leaky found an incomplete, brain case of notably large size in 1.75 million years old sediments with Oldowan tools at Olduvai Gorge. *Homo erectus* could have evolved from this earlier member of our genus which Leaky called *Homo habilis* (handy man)⁷ believing it to have been the tool maker.⁸ So truly, did these experience the Stanley Kubrick moment of breaking a pebble with a stick that was then thrown into the air to become a spacecraft?

The discovery of ancient members of our genus has quickened. W. Henry Gilbert in 2000 discovered the first Asian-contemporary (1 million year old) *Homo erectus* in an African fossil-rich site 150 miles northeast of Addis Ababa, Ethiopia.⁹ Previously found *H. erectus* fossils in Africa are all older. Sexual dimorphism could be indicated by vastly different head sizes now known of *H. erectus*.¹⁰ From Nariokotome III, West Turkana, Kenya, Don (Donald Carl) Johanson has described a 1.6 million year old remarkably complete skeleton of a 12-year-old *H. erectus* (*H. habilis* according

to the Leakeys' classification scheme,¹¹ and *H. ergaster* for others who, until Gilbert's find, did not recognize *H. erectus* in Africa).¹² For his developmental age, the boy had the size and shape, below the neck, of a modern human. His head was very different, however, as distinguished his species. His brain volume measures 800 cc. Ryk Ward and Cris Stringer hold that for later humans, *H. ergaster* ("Turkana boy")¹³ is the root stock (**Figure b42.1**).¹⁴ Stone tools predate this species.

In 1972, at a different East Turkana site, Richard Leakey found a complete "*Homo habilis*" skull, called 1470 (its National Museums of Kenya index number), that dates at least 2 million years old.¹⁵ Excavations by Don Johanson in eastern Ethiopia and by Mary Leakey in fossil-bearing deposits a few miles from, and older than those exposed at, Olduvai Gorge, have since unearthed fossils of *Homo habilis* dating to 2.4 million years ago.¹⁶ Were these the tool makers? But older than Oldowan, are Oldowan-like artifacts found at sites elsewhere in Africa. At Hadar, they date at 2.3 million years old. At Gona in Ethiopia, they date at 2.5 to 2.6 million years old.¹⁷ Who was the tool maker?

At Olduvai, the Leakeys nominated each more advanced hominid species that they found in a stratum with tools as the tool maker. Initially the honor went to the herbivore *Paranthropus*, then (speculatively) to a gracile omnivore *Australopithecus* and then to *Homo habilis*.¹⁸ This made for a good read more than it converged on an answer. At Hadar, an "early *Homo*" jawbone reported by William H. Kimbel has been found in association with the stone tools.¹⁹ At 2.3 million years ago *Homo rudolfensis*, *Paranthropus boisei* and *Australopithecus afarensis* were contemporaries. No "*Homo*" species is known to have existed 2.5 million years ago. Who was the toolmaker? The Oldowan industry preceded and certainly persisted long after *Homo rudolfensis* apparently disappeared from the fossil record. According to Roy Larick if only one hominid group is to be linked with the Oldowan industry then the question becomes: which spans the same time range?²⁰ No early *Homo* species satisfies that stipulation. *Paranthropus* does. □

Figure b42.1¹³ **Distribution in time and space of Pleistocene human lineages**

Modern human *Homo sapiens* have eclipsed preexisting (and extinct) lineages. They derive from a transitional group of African *archaic H. sapiens*.

Other lineages were **Neanderthals**, and three groups of *H. heidelbergensis*.

Neanderthal mtDNA analyses indicate that the divergence that led to modern humans and Neanderthals began more than 500,000 years ago.

H. erectus (pale gray) were long surviving lineages in Asia and Southeast Asia. All the human lineages could have evolved from the African *H. ergaster* (gray).

