

# Homo erectus essay



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Homo erectus (literally “ upright man”) is an extinct hominin that lived between 1. 8 million and 50, 000 years ago. The first fossil found of this species (the type specimen) was a skullcap discovered in 1891 by Eugene Dubois. However, the species was not named until 1894, after a femur (thigh bone) was discovered not far from the skullcap.

The femur was nearly identical to that of a modern human, prompting Dubois to name a new species: Pithecanthropus erectus (literally “ upright apeman”). Both fossils were found in Trinil, Java. The type specimen was named “ Trinil 2”and the femur “ Trinil 3. They are more commonly known as “ Java Man.

” In 1927, Davidson Black named a new species Sinanthropus erectus (literally “ Northern upright man”), based on a tooth discovered at Zhoukoudian near Beijing (Peking), China. The later discovery of 14 calvaria (skull caps), limb bones, and many more teeth strengthened his claim. One of these calvaria became better known as “ Peking Man. ” As more fossils of erectus-like hominins were discovered, paleoanthropologists began to recognize the similarities between Pithecanthropus/Sinanthropus and specimens that had been assigned to the genus Homo. Eventually, both Pithecanthropus and Sinanthropus fossils were subsumed into the species Homo erectus. The morphology of Homo erectus changed very little over its 1.

8 million years of existence. Compared with australopithecines and earlier Homo, Homo erectus had smaller teeth, a shorter face, and a humanlike projecting nose. The numerous skulls that have been discovered show a

significant increase in brain size compared with earlier hominins. On average, the cranial capacity of Homo erectus was about 900 cc, although its range (750 cc-1, 250 cc) overlaps that of modern humans (1, 000 cc-2, 000 cc).

Compared with modern humans, Homo erectus possessed a robust and somewhat primitive-looking skull, face, and dentition. In general, the skull is long, and the forehead is low in profile. The face has marked brow ridges, and the back of the skull has a marked projection for attachment of strong neck muscles. The skull bones are thick compared with modern humans. Many of the Asian specimens (in particular) exhibit a sagittal keel, a ridge running along the top of the skull. All Homo erectus specimens lack the projecting chin of modern humans.

Their robusticity notwithstanding, below the neck Homo erectus looked very much like modern humans. Much of what we know about their postcranial skeleton (below the skull) comes from a nearly complete skeleton from Lake Turkana, known as " WT 15000" or " Nariokotome Boy. " Nariokotome Boy would have been quite tall if he had reached adulthood (perhaps 180 cm, or 6') but the average height of Homo erectus was about 170 cm (5'7"). This size represents a dramatic increase in stature compared with earlier Homo.

Postcranial remains establish that Homo erectus was a committed biped with none of the adaptations to tree climbing observed in earlier hominins. It has been suggested that their somewhat narrower hips indicate that there were more efficient bipeds than the average modern human. Compared with earlier hominins, Homo erectus exhibited greater control over its

environment. This species developed a more sophisticated tool kit and may have mastered how to control fire. In addition, it was very likely the first hominin to move outside Africa. Homo erectus is known for developing Acheulean tools.

These tools are found in high densities in Africa, Europe, and western/south Asia and are rare in East Asia. Like the Oldowan tools used by Homo habilis, Acheulean tools did not have specialized purposes. The Acheulean hand axe (a pear-shaped tool with sharp edges on all sides and a picklike point) was likely a kind of “Swiss Army knife” used to cut, scrape, pound, and dig. In addition to hand axes, the Acheulean tool kit included cleavers, scrapers, and notched tools. The greater diversity of tools likely indicates greater reliance on them.

Where and when hominins first began to use and control fire is the topic of much disagreement. Some paleoanthropologists attribute this innovation to Homo erectus. The earliest, although highly questionable, claim comes from East Africa (Koobi Fora) and dates to about 1.5 million years ago. Other, also dubious evidence comes from South Africa (Swartkrans), dating to 1 million years ago.

Until recently, the best-supported Page 1188 | Top of Article evidence was said to come from Zhoukoudian, in China, dating to between 400,000–500,000 years ago. However, a recent reanalysis of this evidence concluded that there is no direct evidence of in situ burning. So the jury is still out on whether or not Homo erectus was the first hominin to have had controlled use of fire. Other cultural aspects of Homo erectus are also strongly debated

among paleoanthropologists. While some hypothesize that Homo erectus was a big-game hunter, others do not agree. This is also true of the hypothesis that Homo erectus constructed shelters.

Both the evidence of the “shelters” and the interpretation that Homo erectus was responsible for making them have come under scrutiny. So far, no hominin remains have been associated with what some consider the earliest evidence for man-made shelters. Finally, some claim that Homo erectus used watercraft. This is based on evidence for their occupation of islands in Southeast Asia, like Flores, where Acheulean tools (but no hominins) have been found dating to more than 800,000 years ago. Homo sapiens excluded, Homo erectus was the farthest ranging of all the hominins.

Their skeletal remains or their tools are found in Europe, India, and East and Southeast Asia. Evidence suggests that Homo erectus was the first hominin to migrate out of Africa (although recent discoveries in Dmanisi, Georgia, may ultimately disprove this). The oldest Homo erectus fossil from Africa is 1.1 million years old.

In Java, scientists have recently dated fossils to 1.8 million years ago. If these dates are correct, it indicates that Homo erectus left Africa much earlier than once believed. Recent dates from different sites in Java (Ngandong and Sambungmacan) suggest that Homo erectus existed for 250,000 years longer than once believed. If correct, these dates would indicate that the species survived in Southeast Asia until between 27,000 and 53,000 years ago. Since modern humans were also present in Southeast Asia by this time, it would mean that the two species coexisted.

The status of Homo erectus as a species has a long history of controversy. The first Homo erectus fossils found were not accepted as hominins, because they had small brains and at that time it was thought that humans evolved large brains before becoming bipedal. Later, as more fossils of Homo erectus and other hominins were found, the validity of Homo erectus as a taxon was accepted. But more fossils meant more variation, and by the 1970s it was suggested that Homo erectus be split into more than one species: Homo ergaster for the African fossils, Homo heidelbergensis for the European fossils, and Homo erectus for the Asian fossils. For those who advocate splitting the species, Homo ergaster represents the common ancestor of Homo erectus and Homo heidelbergensis; Homo heidelbergensis then gave rise to Neandertals (or Neandertals and modern humans), while Homo erectus in Asia became extinct.

In many respects, much work still needs to be done to define the species and its culture. Source: Encyclopedia of Anthropology. Vol. 3. Thousand Oaks, CA: Sage Reference, 2006.

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