

b41 *Homo erectus* < until 12,000 years ago in Flores; in Asia, tools, fire? rafts? >

Thou art the shrinking violet, half afraid, / That, in rathe April born, / Where icy winds
complain, / Hardly unfolds her petals to the morn / Between the rainbow and the weep of rain.
— *Circe*, John Byrne Leicester Warren, 1893.¹

Homo erectus (something of a grab-bag name for “barrel chested” *Homo* species (clearly not *H. sapiens*, *H. neanderthalensis*, *H. heidelbergensis*, or *H. habilis*) with a cranial capacity of 650-1,250 cc (by comparison that of modern humans is 1,100-1,800 cc).² Distinctive head features are: a sharply receding forehead that from massive brow ridges leads back to a keel-crested, long, low-crowned, thick-boned (pachyostotic to survive clubbing?)³ skull that is puffed out at the sides and is sharply angled at the back; and, a chinless, though deep, jaw bone set with massive teeth.

Specimens of *H. erectus* are from Indonesia, China, India, Europe, and Africa. First finds were by Eugene Dubois (**Figure b41.1**) near Trinil, Java in 1891 of *Pithecanthropus*, literally ape-man, or “Java Man” (a skull cap and femur brought to him by natives from the banks of the River Solo), by Gustav Heinrich Ralph von Koenigswald (1902-1982) at Sangiran, Java beginning in the late 1930s of parts 40 *P.* individuals including the small “female” Sangiran 2 skullcap, and by Davidson Black (1884-1934) at Zhoukoudian, China; in 1927 of his “famous making” single massive humanoid molar that he named *Sinanthropus pekinensis*,⁴ and in 1929 of the robust “Peking Man” (a jaw with three teeth, and two skulls of juveniles).

H. erectus in Asia had primitive stone culture with a style of tool making (*see* Topic b42) that archaeologists in Europe refer to as a “pebble” industry and in Africa as an “Oldowan” industry. Typically, somewhat haphazard strikes were made to produce cutting edges on the end of a cobble and to break off usable sharp edged flakes.

On Flores island between Java and Timor, “Oldowan” industry stone tools of rock different from that of the local rock can be found. In 2004, M. J. Morwood reported from excavations at Liang Bua (a large limestone cave) evidence of a population in existence 12,000 years ago of meter-tall hominin species—given the prepublication names *Sundanthropus* (Sunda man) *floresianus*, then *H. floresianus* (which the crass would surely have read as “flowery arsed”) and finally *H. floresiensis*.⁵ These “*H. erectus* dwarfs,” called “hobbits” in the popular press, had survived from before 38,000 years ago amid Komodo dragons (15-plus infectious agents are suspended in their spittle)⁶ and *Stegodon* (dwarf elephants).⁷ Also on Flores, “Oldowan” stone tools had been brought to a site at Mata Menge between 0.80 and 0.88 million years ago, and older ones to a site at Tangi Talo before 0.90 million years ago. The dates (obtained by zircon fission-track radiometric methods) are of tuffaceous deposits that sandwich the tool bearing beds. Associated with the tools are fossils of animals that by misadventure arrived swimming, flying, or drifting on rafts of vegetation (in short, an impoverished fauna). These record that Flores island was at no time connected by a direct land route between Southeast Asia or with Australia. Even at times of lowest sealevel during the last glacial maximum, the strait between the Sunda continental shelf and Flores would have been 19 km wide at its narrowest. Evidently it was *H. erectus* who, in this region, by misadventure⁸ or purposefully, made the first deepwater crossings.

In China, Peking Man inhabited caves, the most famous at Longgushan (“dragon-bone hill”) near the village of Zhoukoudian (formerly *Chou-Kou-Tien*) in cave sediments 780,000 years old.⁹ In these stone implements occur in layers some of which include burned bones, antler fragments, and pieces of wood. The first investigators (Teilhard de Chardin, Brian Meinian, Franz Weidenreich, Pei Wenzhong, and Yang Zhongjian) of the cave in 1929 assumed that where the climate was cold, rathe (an archaic word meaning “exposed too early, as in a flower that blooms in still-frigid spring”) *H. erectus* had learned to use fire for, among other things, cooking and hardening bones and antlers for tools. However, no ash, charcoal or baked clay, which would be evidence for ancient campfires or hearths, were found in 1996 and 1997 during renewed investigations. Steve Weiner, who reported

on this, found that several alleged hearths have no charcoal or concentrations of phytoliths (the silica particles that wood, leaves and grass contain and which survive burning) but display a mix of silt, clay and organic matter that probably record flowed-in puddled rainwater.¹⁰ (Systematic use of fire for cookery is evidenced by Neanderthal earth-ovens 100,000+ years old. Less certain claims are for the control of fire that promoted a swapping-guts-for-brains meat diet since 800,000+ years ago.)¹¹

The traditional view is that *Homo sapiens* (oldest confirmed fossil is 195,000 years old)¹² evolved some 500,000 years ago from *Homo erectus* distinguished mostly by 1) the features of their head and a brain not significantly smaller but (as reported by H. Coqueugniot in 2004) with (unlike modern humans) little postnatal growth as so of chimpanzees and, 2) the skeletal details of the remainder of their body (especially, those that effected the way they could walk). From DNA evidence reported by Ryk Ward and Chris Singer, this was also when Neanderthals (*Homo neanderthalensis*) and *Homo sapiens* separated from a common ancestor. Associated in Europe with *Homo heidelbergensis*, and also known from the Near East and India, are 200,000 to 500,000 year old “Acheulean” tools (name records Saint-Acheul in the Somme valley, northern France, where embedded in and scattered among fossilized bones of prehistoric mammals, Jacques Boucher de Perthes (1788-1868) found and collected many claiming them (correctly) to be artifacts). These are large shards struck from big rocks or boulders which are then shaped into bifaces and further refined at their edges (using bone or antler tools) into distinctive tear-drop or lanceolate shaped “hand axes” and chisel ended “cleaver stones.” Some are so thin and delicate that they conceivably were only for ceremonial, monetary, or gift use.

Homo erectus was in Java by 1.6 million years ago. In Africa, associated with *H. erectus*, and dated 500,000 to 1 million years old, are less refined Acheulean-industry hand axes (some so large that if not only for ceremonial or monetary use, they conceivably were used for butchering very large animals or shredding tree parts into fire starter fuel). An Acheulean industry in its earliest instance is associated with *Homo ergaster* in East-Central Africa and is dated at 1.5 million years old. Earliest *H. erectus* in equatorial Africa dates to ~2 million years ago. □

Figure b41.1¹³ **Marie Eugène Francois Thomas Dubois** (1858-1940)

Absence of evidence is not evidence of absence,¹⁴ so upon an assumption inspired by Alfred Wallace’s writings on Java’s indigenous animals and plants, that humankind had come into being in tropical zones, and Ernst Haeckel’s theory that most closely related to humans is the Indonesian “man of the woods” or orangutan (Malaysian *orang*, person, *hutan*, forest) a general term, at the time, for all great apes, Dubois, to be where he could search for the missing link, joined the Dutch Colonial Army to a post in Sumatra (as a medical officer). Cave deposits there, which he excavated, yielded fossils too recent to be the “missing link” that he sought. He relocated to East Java upon news of more ancient sites with human artifacts found there by Pieter Jacob van Rietschoten. In 1891, ancient sediments exposed in the banks of the Solo River at Trinil yielded a skull cap and upper jaw molar that were neither clearly man nor ape. Cautiously he called these fossils *Anthropopithecus* (manlike-ape). But eleven months later, in August 1892, a femur at the same level as the previous year’s finds, if of the same creature, proved that it had habitually walked upright. Dubois called the creature *Pithecanthropus erectus* (upright walking ape-man). In 1894, the year before his return to Holland, Dubois published that *P. erectus*, dubbed “Java Man,” was our ancestor of a million years ago.¹⁵ This claim was met with the disbelief of outrage. Unable to make a stronger case than the fossils he could display, he, disappointed to belligerence, buried these under his house, where they remained for the next thirty years.

He received no solace from his assistant J. J. A. Bensen who during 1930-34 while cataloguing the numerous mammal bones from the Trinil site, found among them eight more fragments of *P. erectus* all of which were clearly not from the same individual.¹⁶ So likely, nor were the original *P. e.* skull and femur.¹⁷



When a young teacher of anatomy in Amsterdam (1885).