

things, and settling for rehabilitative narrative technology, has been one of physical anthropology's persistent problems. Doing it on purpose does not constitute a solution.

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## A Missing Link

**Eugène Dubois and the Ape-Man from Java.** The History of the First "Missing Link" and Its Discoverer. BERT THEUNISSEN. Kluwer, Norwell, MA, 1988. xii, 216 pp., illus. \$49. Translated from the Dutch edition (Amsterdam, 1985).

Evolutionists have not always recognized the crucial importance of fossils in the reconstruction of our evolutionary past. In the *Origin of Species* (1859) Darwin admitted that the fossil record was meager and relied instead on indirect evidence from embryology, comparative anatomy, and plant and animal breeding. Of course, hardly any important human fossils were then known—in fact only one, the first Neanderthal, discovered in 1856. Yet, throughout the 19th century, as more and more Neanderthal and other Ice Age fossils were discovered, evolutionists still failed to cite them in support of their position. Why?

One reason was scientific "racism." Darwin and his contemporaries exaggerated racial differences so much that fossils like Neanderthals appeared no more primitive than Africans or Australian aborigines. Another reason was the long-held doctrine that Caucasians originated in Asia and could not possibly be descended from prehistoric inhabitants of Europe. Because the main arguments for (and against) evolution were not based on fossils, hardly any 19th-century evolutionists even bothered to look for "missing links." An outstanding exception was Eugène Dubois (1858–1940).

Dubois was a Dutch army surgeon who believed in Darwinism and journeyed to the Far East to find human fossils to prove it. After years of searching, he found them in a river bank in central Java in 1891–92. What he found was a well-preserved fossilized molar, skullcap, and femur presenting a mixture of apelike and human traits. The femur looked fully human, indicating that it belonged to someone who walked upright, and the skullcap resembled a gibbon's, with a brain too large for an ape yet too small for a human being. To Dubois, these fossils showed clearly that in the transition from early ape to human being walking on two feet had been the beginning. He called his



Eugène Dubois's reconstruction of *Pithecanthropus* for the World Exhibition in Paris, 1900. [From *Eugène Dubois and the Ape-Man from Java*; Dubois Collection, Rijksmuseum van Natuurlijke Historie, Leiden]

find *Pithecanthropus erectus*, the erect ape-man from Java. Anthropologists today have changed the name to *Homo erectus*, but they still accept Dubois's basic interpretation. It is fair to say that Dubois discovered the first true missing link.

Despite Dubois's importance, historians of science have until now written relatively little about him. The following curious story, based largely on hearsay, has been retold in anthropology textbooks: *Pithecanthropus* created an immediate scientific controversy; Dubois defended his interpretation against countless critics; then, about 1900, he took himself and his bones into seclusion; finally, 25 years later, just as other scientists were converting to his view, he resurfaced to announce that he had changed his mind and now considered *Pithecanthropus* to be an ape. Bert Theunissen's new book shows that this story is neither complete nor completely true.

*Eugène Dubois and the Ape-Man from Java* is a translation of the author's doctoral dissertation. It is not a thorough biography, or even a scientific biography. Rather it is a carefully researched account of Dubois's adventure with his missing link. According to Theunissen, Dubois was a true pioneer in recognizing the importance of fossils. This was his lasting contribution to science, along with the impetus he gave to others to think the same way. Theunissen provides a good background to Dubois's Javanese finds and analyzes all the scientific arguments about them. The most exciting part of his

book, however, is its surprising account of Dubois's later life. Though Dubois did in fact remove himself from the debate about *Pithecanthropus*, Theunissen reveals that he never really changed his mind about its status as a missing link but merely exaggerated its apelike traits to distinguish it from other fossils being discovered at the time. Meanwhile he was engaged in ingenious research on the allometric relation between brain and body weight in mammals, research that confirmed his belief that *Pithecanthropus*'s brain size was halfway between that of apes and human beings. This research eventually led him away from the gradualist Darwinian model of evolution to a saltationist model like that of punctuated equilibrium. Ironically, he ended up defending his missing link on non-Darwinian grounds.

*Eugène Dubois and the Ape-Man from Java* does not tell us everything we might want to know about its subjects, but it does place them in clear historical perspective and correct misinformation about them that has been around for a long time. Its contribution to the historiography of anthropology is overdue.

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## Ape Affinities

**Orang-utan Biology.** JEFFREY H. SCHWARTZ, Ed. Oxford University Press, New York, 1988. x, 383 pp., illus. \$79.95.

In the late 19th century, as the notion of the relatedness of humans and great apes gained acceptance, anatomists searched among the higher primates for "man's" closest relative. For a time, when Asia was the focus of interest in human paleontology, some scientists, such as Ernst Haeckel, believed that the Asian orangutan (genus *Pongo*) was the extant ape most closely related to our own species. Others did not agree. Charles Sonntag, in addition to suggesting that orangutans were "heavy in build, ugly in appearance and sluggish in habits," marshaled comparative anatomical evidence that suggested that African apes and humans shared a common ancestor at a time that postdated the divergence of *Pongo*. The following year (1925) *Australopithecus* was discovered and the search for the fossil evidence of human evolution shifted to Africa.

In 1984 Jeffrey Schwartz sought to restore the notion of an orangutan-human clade. *Orang-utan Biology* is a follow-up that was prompted by his interest in the phyloge-