

Lectures 16 - 17: *Homo ergaster, erectus* and slowly emerging modern human behaviors - additional notes

A possible case of hypervitaminosis A (an overdose of A)

Walker, A., Zimmerman, M.R. and Leakey, R.E.F.

1982 A possible case of hypervitaminosis A in *Homo erectus*, *Nature* 296:248-50.

Abstract: Following an initial discovery by Bw. K. Kimeu in 1973, sieving operations have recovered the most complete *Homo erectus* skeleton so far known (Fig. 1) from the Upper Member of the Koobi Fora Formation in Area 103, Koobi Fora, East Lake Turkana in Kenya. The partial skeleton shows pathological changes consistent with chronic hypervitaminosis A. We attribute this disorder to the high dietary intake of animal liver, most probably that of carnivores, during a period when the dietary habits of *Homo erectus* were changing.

and also see

Skinner, M.

1991. Bee brood consumption: an alternative explanation for hypervitaminosis A in KNM-ER 1808 (*Homo erectus*) from Koobi Fora, Kenya
Journal of Human Evolution 20:493-503.

Abstract: A *Homo erectus* individual (KNM-ER 1808) from Koobi Fora, Kenya dating from 1.6 ± 0.1 million years exhibits pathological apposition of bone on long bone shafts. This was originally attributed to hypervitaminosis A from the consumption of carnivore livers. Bee brood has a sufficiently high concentration of vitamin A that protracted ingestion could theoretically produce hypervitaminosis A. The ecology of the East African bee, *Apis mellifera scutellata*, is investigated to show that the density of nests with their brood contents within a reasonable foraging area of early *Homo erectus* would yield an ample and reliable energy source with deleteriously high vitamin A content. A potential role of honey gathering and insect larvae consumption in hominine behavioural and physical evolution is discussed.

Early wooden spears at ca. 400,000 years bp.

Thieme, H.

1997 Lower Palaeolithic Hunting Spears from Germany. *Nature* 385:807-810.

Abstract: Little is known about the organic component of Lower and Middle Palaeolithic technologies, particular with respect to wooden tools. Here I describe some wooden throwing spears about 400,000 years old that were discovered in 1995 at the Pleistocene site of Schöningen, Germany. They are thought to be the oldest complete hunting weapons so far discovered to have been used by humans. Found in association with stone tools and the butchered remains of more than ten horses, the spears strongly suggest that systematic hunting, involving foresight, planning and the use of appropriate technology, was part of the behavioural repertoire of pre-modern hominids. The use of sophisticated spears as early as the Middle Pleistocene may mean that many current theories on early human behaviour and culture must be revised.

Figure 5 Spear II, which is 2.30m long. The spear is shown to the left of an incomplete pelvis of a horse, and the base has been broken off. Insert shows a detail of the tip of spear II. Scale in cm.

Figure removed due to copyright restrictions.

More skulls of *Homo ergaster* from Dmanisi

Vekua, A., D. Lordkipanidze, G.P. Rightmire, J. Agusti, R. Ferring, G. Maisuradze, A. Mouskhelishvili, M. Nioradze, M. Ponce de Leon, M. Tappen, M. Tvalchrelidze, and C. Zollikofer.

2002 A New Skull of Early *Homo* from Dmanisi, Georgia. *Science* 297:85-89. (5 JULY 2002)

Abstract: Another hominid skull has been recovered at Dmanisi (Republic of Georgia) from the same strata in which hominid remains have been reported previously. The Dmanisi site dated to ca. 1.75 million years ago has now produced craniofacial portions of several hominid individuals, along with many well-preserved animal fossils and quantities of stone artifacts. Although there are certain anatomical differences among the Dmanisi specimens, the hominids do not clearly represent more than one taxon. We assign the new skull provisionally to *Homo erectus* (= *ergaster*). The Dmanisi specimens are the most primitive and small-brained fossils to be grouped with this species or any taxon linked unequivocally with genus *Homo* and also the ones most similar to the presumed *habilis*-like stem. We suggest that the ancestors of the Dmanisi population dispersed from Africa before the emergence of humans identified broadly with the *H. erectus* grade.

Lordkipanidze, D., A. Vekua, R. Ferring, G.P. Rightmire, J. Agusti, G. Kiladze, A. Mouskhelishvili, M. Nioradze, M. Ponce de Leon, M. Tappen and C. Zollikofer.

2005 Anthropology: The earliest toothless hominin skull.

Nature 434, 717 - 718 (07 April 2005)

Abstract: The site of Dmanisi in the Eurasian republic of Georgia has yielded striking hominin, faunal and archaeological material as evidence for the presence of early *Homo* outside Africa 1.77 million years ago, documenting an important episode in human evolution. Here we describe a beautifully preserved skull and jawbone from a Dmanisi hominin of this period who had lost all but one tooth several years before death. This specimen not only represents the earliest case of severe masticatory impairment in the hominin fossil record to be discovered so far, but also raises questions about alternative subsistence strategies in early *Homo*.

An offspring of *Homo erectus* ?

Brown, P., T. Sutikna, M. J. Morwood, R. P. Soejono, Jatmiko, E. Wayhu Saptomo & Rokus Awe Due

2004 A new small-bodied hominin from the Late Pleistocene of Flores, Indonesia.

Nature 431:1055-61.

Abstract: Currently, it is widely accepted that only one hominin genus, *Homo*, was present in Pleistocene Asia, represented by two species, *Homo erectus* and *Homo sapiens*. Both species are characterized by greater brain size, increased body height and smaller teeth relative to Pliocene *Australopithecus* in Africa. Here we report the discovery, from the Late Pleistocene of Flores, Indonesia, of an adult hominin with stature and endocranial volume approximating 1m and 380 cm³, respectively—equal to the smallest-known australopithecines. The combination of primitive and derived features assigns this hominin to a new species, *Homo floresiensis*. The most likely explanation for its existence on Flores is long-term isolation, with subsequent endemic dwarfing, of an ancestral *H. erectus* population. Importantly, *H. floresiensis* shows that the genus *Homo* is morphologically more varied and flexible in its adaptive responses than previously thought.