



*...going one step further*



**VP755/1**

# KNM-ER 406

## Omo L. 7a-125

- **Australopithecus boisei**
- **Paranthropus boisei**

The model was developed from a cast of the replica from the collection of the Johann Wolfgang Goethe University of Frankfurt am Main, Institute of Anthropology and Human Genetics for Biologists.

The catalog ID “KNM-ER” stands for “Kenya National Museum – East Rudolph; find number 406” and indicates the site at Lake Kurkana, formerly Lake Rudolph. The calvarium, found by R. Leakey and H. Mutua in 1970, is approx. 1.7 million years old and one of the best preserved fossils of the “Nutcracker Man”. The partial mandible Omo L.7a-125 added here originates from a different excavation site, but can be clearly attributed to the same species.

This ID was originally assigned to skull find OH 5 and alludes to the strikingly strong and robust masticatory system which is characteristic of this species. It indicates a highly specialized diet of hard-fibred plants and kernels and influences the entire skull morphology. Massive masticatory muscles produced immense chewing pressure which acted on the substantially enlarged molars and premolars. The flaring zygomatic arches and the prominent sagittal crest as origin of the temporal muscle suggest how powerful this largest masticatory muscle was. A comparable sagittal crest can also be seen in male gorillas and sometimes in male orang-utans, although this is not an indication of a closer relationship. Rather, Nutcracker man clearly belongs to the hominine line, which separated at least 4-5 million years earlier from the line that led to today’s chimpanzees, which are most closely related to our own line.

The assignment to the *Australopithecus* species is not generally accepted. Some scientists consider it justified to distinguish the robust forms of the australopithecines – i.e. also the similar-looking *Australopithecus robustus* from South Africa and the slightly older *Australopithecus aethiopicus*, of which few finds from Eastern Africa and Malawi are known – from the more delicate forms and give these the genus name *Paranthropus*.

This precursor form of humans probably already used simple tools, e.g. excavation tools, for access to roots or tubers. Whether they also were able to make simple stone tools is not clear, since they lived at the same time as the earliest representatives of the *Homo* genus, which on their part were bearers of the oldest stone-tool culture, the Oldowan culture. However, the cranial capacity of the first *Homo* representatives exceeded that of the Nutcracker men by just over 100 cubic centimeters, for which capacities of 500 to 510 cubic centimeters were reconstructed. Assuming that the larger brain also had a slightly higher intelligence, the “robusts” would seem rather unlikely as manufacturers of the tools.

On the other hand, it can be taken for certain that *A. boisei* became extinct 1-1.5 million years ago without successors. Possibly, the extreme specialization of these precursor humans prevented them from reacting flexibly to a changing environment.