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# **ABSTRACT BOOK**

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### Not the brain alone: the nutritional potential of elephant heads in Paleolithic sites

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The significant role of elephants in Paleolithic faunal assemblages is well demonstrated in many sites in Europe, Africa and Asia (e.g., Klein, 1988; Anzidei et al., 2011; Rabinovich et al., 2012). However, the dietary significance of these huge animals has not been thoroughly explored. We argue that during Paleolithic times elephants were a constant and significant source of calories for early hominins. The human use of the elephants for dietary purposes is still debated in some cases (e.g., Villa et al., 2005). Several Lower Paleolithic Acheulian sites, however, clearly demonstrate butchery of elephants (e.g., Goren-Inbar et al., 1994; Rabinovich et al., 2012). Post-Acheulian and Mousterian sites in Europe provide further evidence for the use of elephants for dietary purposes, such as meat and marrow consumption, (e.g., Yravedra et al., 2012).

The role of protein in human diet and subsistence in Lower Paleolithic sites has been demonstrated repeatedly (e.g., Milton, 2003; Bunn, 2006) and it is commonly accepted that Acheulian and even pre-Acheulian hominins extracted a significant portion of the calories they consumed from animal meat and fat, and were actually dependent on animals for their survival (e.g, Ben-Dor et al., 2011). Carnivory is thus a remarkable human trait accompanying humans from their earliest stages to this very day.

Many Paleolithic sites with elephant remains found in direct association with human activity have yielded elephants' head remains, including mandibles, skull fragments and teeth (e.g., Rabinovich et al., 2012; Yravedra et al., 2012). The presence of elephants' head parts in those sites should not be overlooked and needs to be explained.

This presentation deals with the nutritional potential of the elephant's head and its implications as follows:

- 1. An overview of elephant skull remains in selected Paleolithic sites.
- 2. The anatomy of the elephant's head and its nutritional potential.
- 3. Ethnographic evidence for the consumption of different head parts of elephants.
- 4. A re-evaluation of the nutritional potential of the elephant's head and its contribution to the understanding of Paleolithic human behavior.

Our research will provide accounts of archaeological sites with elephant remains including the numbers of those remains in the faunal assemblages, and the possible uses of those elephants' parts by early humans.

The anatomy of the elephant's head will be presented using zoological and biological literature, as well as ethnographic documentation on the hunting and consumption of elephants' heads. One example for such documentation can be found in an account by Cuthbert Christy, an elephant hunter. There he describes:

"The best way to secure a supply, when one has only a hunting knife, is to cut away the skin of the hollow over the eye. Here both meat and fat are easily obtainable, but should be cut out soon after death." (Christy, 1922, pp. 292-293).

We suggest that the elephant's head, including all its parts, is rich in edible meat and fat. The tongue, for instance, can weigh up to 14 kilograms in modern African elephants, and the trunk can weigh over 110 kilograms in modern African elephants (Byers and Ugan, 2005). Another organ worth mentioning is the temporal gland, an organ located in the temporal depression, behind the eyes (Rasmussen et al., 1984). Visible oily secretion is discharged from this gland. Pleistocene elephants probably also possessed temporal glands, that most likely were larger than those of modern elephants (Buss et al., 1976).

The elephant's head is a particularly high-quality source of energy, and therefore could have been used by early hominids as an important dietary source. Thus, understanding the nutritional potential of elephant heads, combined with the remains of elephant skulls in Paleolithic sites, provides new insights concerning human behavior and subsistence in Paleolithic times.

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