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The eaten and the eaters: Human-carnivore interactions at Middle Pleistocene Qesem Cave, Israel

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Research on the direct and indirect interactions between hominids and carnivores is clearly important from an evolutionary perspective. These interplays could have taken different paths and lead to mutual pressures. Confrontation, dependency (scavenging), competition concerning the use of caves and/or the acquisition of prey, and domestication (as a last stage) are some of the scenarios emerging on these mutual relationships [1]. Some researchers have pointed out a co-evolutionary pattern between hominids and carnivores [2], but, while appreciating the importance of this relationship is widely accepted, tacit assumptions about how this co-evolution worked vary considerably. Reconstructing some aspects related to such interactions during the Pleistocene is possible by studying different archaeological contexts. In this study, we attempt to contribute to the topic by presenting faunal taphonomical data from the lower sequence of Qesem Cave, Israel. These deposits studied have been dated by the Uranium-Thorium series as well as by TL and ESR to between 420 ka and approximately 300 ka [3]. One of the main characteristics of the faunal record from Qesem is the extremely rare presence of carnivores in relation to the very intensive human presence. The assemblages appear to have been generated solely by humans and primarily modified by their food-processing activities. The most common prey species is the Mesopotamian fallow deer (*Dama* cf. *mesopotamica*), which shows a wide age range and a biased anatomical profile, including mainly long-limb bones indicating the importance of marrow in hominid transport decisions [4]. The testimonial presence of carnivores is only evidenced by 2 hyena teeth, 2 metapodials, 6 rib fragments and 12 tooth-marked bones from Yabrudian layers (0.10% of 22,324 studied specimens), and 1 pelvis fragment and 69 gnawed and digested bones from Amudian layers (0.19% of 37,304 analyzed specimens) associated with the central hearth (including an area to its south). Other alterations, such as licking, pitting and scooping out, were not documented. Pits occurring on cancellous tissues do not exceed 3.5mm in length and 2.6mm in breadth, and those located on dense cortical tissue range from 0.2 to 3.9 mm in length and 0.1 to 3.5 mm in breadth. These measures do not rule out any carnivore, since the size of the pits overlap with the ranges for different species of carnivores. The general taphonomical characteristics, including the significant scarcity of carnivore-induced damage (and carnivore specimens) indicate activities of marauding scavengers visiting the cave once it is abandoned by hominids. But carnivores played another role at Qesem Cave. The presence of cut marks on 3 rib fragments of medium-sized carnivores suggests that these predators were also used as food. Incisions were identified both on the external, internal and lateral surfaces of the rib fragments, indicators of processing activities such as defleshing and evisceration. The latter is especially relevant because the internal organs of the thorax are the first parts to disappear in the consumption sequence of hunting carnivores (e.g. [5]). Thus, if the Qesem hominids eviscerated, the access to the carcass was probably primary and immediate, either accidentally or intentionally. In light of these data, we cannot rule out the possibility that these animals were considered a source of occasional extra food for Acheulo-Yabrudian Cultural Complex hominids between 420-300 ka. Nevertheless, this is at the moment an isolated case within a context where the main prey is the fallow deer. Thus, the use of carnivores at Qesem should be understood as sporadic rather than a repeatedly systematic activity. This preliminary study provides basic data on the role of carnivores in anthropogenic contexts, as a sign on a road map of hominid-carnivore interactions during the Middle Pleistocene in the Levant.

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