

Purposes of Cannibalism at Gran Dolina

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By definition, cannibalism is referred to as the act of a species feeding on its kind. Although humans are not the only species that perform this act, it is the only species that demonstrates a form of mental discomfort with the concept. The types of cannibalism tend to fall within the categories of nutritional, cultural or ritualistic, warfare (gastronomic), and survival. Beyond these typologies, two other categories further specify cannibalistic motives; endo-cannibalism, and exo-cannibalism. Endo-cannibalism refers to the eating of others from the same group, while exo-cannibalism refers to the eating of those who are considered outsiders (Carbonell et al. 2010:539). Telltale signs in the archaeological record of cannibalism are signs of butchering which resemble those found on animals (Saladié et al. 2012:683). These include cut marks on bones, peeling of bones, breaking of bones from anthropogenic causes, and the disconnection of bones making up the human skeleton (Saladié et al. 2012:683). A compilation of the findings over the years from layer TD6, in the Lower Pleistocene campsite of Gran Dolina in Atapuerca, Spain, suggest that the *Homo antecessor* occupants, early humans closely related to *Homo sapiens* (Carbonell et al. 2005:5678) participated in cannibalism, but does not specifically point to either exo-cannibalism or endo-cannibalism. Although there have been many theories on the reasoning behind the cannibalism at this site, there is no answer which is overall agreed upon.

In the TD6 level at the site of Gran Dolina, lithic tools (Carbonell et al. 2010:539) and anthropogenically disturbed remains belonging to both human and non-human species were found intermingled (García and Arsuaga 1991:415-416). The indications of cannibalism were both the human and faunal remains being scattered together with similar markings, lacking designated pits or identifiable burials for the human remains. Some of the faunal remains found belonged to cave bears, spotted hyenas, foxes, short-tailed weasels, lynx, and Mosbach wolves

(García and Arsuaga 1991:415-416). Many of the species mentioned above could not have been hunted by an individual, but by a group of people. Larger gatherings of people together lead to cultural development, therefore it would have been likely for some form of culture to exist throughout the group. The lack of burials or other materialistic remains with the bones and lithics is usually considered an indication that there were no cultural practices. But cultural practices do not always leave evidence in the archaeological record, meaning it would be impossible to determine, and incorrect to completely rule it out.

As discussed, the archaeological record is not perfect and does not preserve every single aspect of the past, especially cultural, considering only material remains have a chance of being preserved. In this regard, there is no evidence to suggest that the butchering of both human and faunal prey did not include some form of cultural aspects. It is unknown whether or not there were designated members of the group that did the hunting, while others were assigned to butcher. The randomization of the scattering of bones and lithics may not point to ritualistic burials, but any of the processes before discarding of bones is unknown.

In the past years, researchers have discussed the possibility of the *antecessor* occupants participating in cannibalism as a form of survival. It was an environment supporting a holarctic forest growth (Fernández-Jalvo et al. 1999:620) which in turn promoted the survival of various species. The climate during the time period of this level would have been mild, and food resources would have been abundant at the time (Carbonell et al. 2010:547). Amongst the remains at the site, at least 4000 of them were faunal (Rodríguez et al. 2019:231), which coincides with the environment and species abundance at the time. The faunal, human, and lithic remains at the site infer that it was a base camp or settlement for the human occupants (Rodríguez et al. 2019:230; Saladié et al. 2012:687). This infers that there would have been a

grouping of humans present at the site, explaining the ability to conspire together to hunt and butcher animals (Pérez-Peréz et al. 2017). With capabilities to hunt larger prey and enough bodies to hunt smaller prey in larger amounts, there wouldn't have been any need for survival cannibalism. Hunting humans as prey would have proven to be a more difficult task, as a result of having more intelligence than other possible animal prey (Cole 2017). In addition to being a difficult task, the caloric return of humans in comparison to the effort it would take to hunt would not be considered worth it (Cole 2017).

From all the human remains at the site, at least 40% of them have markings coinciding with those of cannibalism (Rodríguez et al. 2019:230). Initially, that would seem to be a high percentage indicating that humans were a fairly usual part of the *antecessor* diet, but there have only been 156 human remains found belonging to at least 11 individuals (Carbonell et al. 2010:543); a lesser amount in comparison to the faunal remains. Of these remains, four are established as children under the age of 4 (Carbonell et al. 2010:543). At first glance, these remains follow a similar pattern of chimpanzee cannibalism. Chimpanzees often demonstrate violence towards others within their own groups, and even participate in infanticide, resulting in the sharing of the meat (Saladié et al. 2012:683). Some of these cases were the results of females being newly introduced to the group, and it was their young that were eaten (Saladié et al. 2012:685). Chimpanzee infanticide affects both sexes leading to the proposition that this act takes place due to competition with other groups in a setting of an abundance of resources (Saladié et al. 2012:684).

Early on there was suspicion that, like the cases of chimpanzee cannibalism, the actions at Gran Dolina were of gastronomic origins (Andrews and Fernández-Jalvo 2003:78). In a comparison of behaviour, the occupants of Gran Dolina could have been competing with other

groups in the area for resources, or there could have been newly welcomed individuals joining the group. There has not been any further analysis of the human remains at the site to determine if there were any biological relations between the individuals found. Although there has been discussion in the past of the cannibalized individuals initially belonging to other groups and being brought to the site to be butchered and consumed, there has been no substantial archaeological evidence to back these claims. The human remains have been anthropogenically modified to the point where it is not possible to determine if the causes of death were natural or of violence (Rodríguez et al. 2019:236-237). Until there is supporting evidence, it cannot be confirmed that the cannibalized individuals were the victims of gastronomical cannibalism. One theory that has not yet been discussed in detail is the possibility of human cannibalism as a method of disposing of group members who have passed away. Taking into account that there have not been any other nearby sites during this time period also containing remains of cannibalized humans, it is unlikely that this was a habitual practice to eliminate enemies. Had that been the case, there would have likely been other nearby groups participating in similar practices.

Another popular theory discussed has been nutritional cannibalism. The human remains provide evidence for various anthropogenic processes that point to nutritional purposes as the reasoning for the exploitation of bones. Fragments of skulls and mandibles discovered bear markings coinciding with removal of the scalp and defleshing (Saladié et al. 2012:688). Shoulders and pelvic girdles possess markings of defleshing, breaking of bones, and dismemberment from the original bodies (Saladié et al. 2012:688). Various vertebrae and ribs have cut marks, have signs of defleshing, and peeling (Saladié et al. 2012:688). Many bones from arms and legs demonstrate defleshing cut marks, as do bones from both hands and feet,

which also bear marking from the cutting of tendons (Saladié et al. 2012:689). The breakage of bones is thought to be for reaching the marrow (Saladié et al. 2012:688). The butchering process of deer, from the site, has been compared to that of humans. Of the 178 deer remains, 14.9% contain cut marks and 10% show bone breakage (Saladié et al. 2012:690). The skulls and jaws demonstrate removal of the skin, shoulders and pelvic girdles show signs of defleshing, vertebrae and ribs possess cut marks and signs of peeling, the hind and forelimbs show signs of defleshing and removal from the originating bodies (Saladié et al. 2012:690-691). The breaking of the bones, similar to the human remains, is thought to be for marrow extraction (Saladié et al. 2012:691).

From the physical remains preserved in the archaeological record, it appears that the human butchering processes were similar to that of deer, and the other faunal remains. What is unknown about the remains is how much of the flesh and organs were actually consumed. It is common knowledge today that organs and bone marrow are both of high nutritional value, but the possession of knowledge to consume internal organs may not have been prominent at the time. There have been arguments that the breakage of skulls was to get at the brains of prey, but there are no theories on whether or not other vital organs, such as the heart, were consumed by *antecessors*. The possibility that organs and other scraps of meat would have been at the disposal of carnivores ingesting the leftovers is not completely out of the question. Any carnivorous markings made on bones found at the site were suspected to have taken place after anthropogenic alterations (Carbonell et al. 2010:547).

In light of this site being the oldest archaeological evidence of cannibalism (Andrews and Fernández-Jalvo 2003:59), it is possible that the methods used to butcher humans were inspired by the processes used on fauna. As mentioned earlier, upon initial discovery and excavation of

the site, it was determined that the human and faunal remains were scattered at random (Fernández-Jalvo et al. 1999:591). According to recent sedimentological analysis, there is a possibility the fossilized remains at Gran Dolina were not deposited and left undisturbed up until excavation (Campaña et al. 2016). Dividing layer TD6 into sublayers, evidence of fluvial flow suggests that different sedimentary layers were accumulated from different directions (Campaña et al. 2016). This opens up the possibility that the opening of the cave, rather than the cave itself may have been the original place of deposition of butchered remains (Campaña et al. 2016). The fluvial flow would better explain the carnivorous markings on the anthropogenically altered bones, considering the alternative of carnivores having to get past the occupants of the cave to access the bones if they were discarded within the cave.

Altogether the discussion of the above theories of cannibalism that took place at the TD6 level in the Gran Dolina site in Atapuerca, Spain lead to no real answer about the reasoning behind the earliest recorded history of cannibalism in the archaeological record. With newer technology being made more readily available over the years, more questions may be answered about the diets of the *Homo antecessors* who lived in the area. What is currently known is there were instances of cannibalism, other faunas were also part of the diet, there is no evidence of competing groups for the abundance of resources, and anthropogenically altered remains were less than the faunal. As discussed above, further discussion into each claim of reasoning behind the cannibalism contradicts another, leaving no room for a sole conclusion.

Bibliography

Andrews, P and Fernández-Jalvo, Y

2003 Cannibalism in Britain: Taphonomy of Creswellian (Pleistocene) faunal and human remains from Gough's Cave (Somerset, England). *Bulletin of the Natural History Museum Geology*, Vol.58 pp59-81.

Campaña, I., A. Pérez-González, A. Benito-Calvo, J. Rosell, R. Blasco, J. M. Bermúdez de Castro, E. Carbonell, and J.L. Arsuaga

2016 New interpretation of the Gran Dolina-TD6 bearing Homo antecessor deposits through sedimentological analysis. *Scientific Reports*.

Carbonell, E., J. M. Bermúdez de Castro, J. L. Arsuaga, E. Allue, M. Bastir, A. Benito, I. Cáceres, T. Canals, J. C. Díez, J. van der Made, M. Mosquera, A. Ollé, A. PérezGonzález, J. Rodríguez, X. P. Rodríguez, A. Rosas, J. Rosell, R. Sala, J. Vallverdú and J. M. Vergés

2005 An Early Pleistocene Hominin Mandible from Atapuerca-TD6, Spain. *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 102 No. 16 pp5674-5678.

Carbonell, Eudald, Isabel Cáceres, Marina Lozano, Palmira Saladie', Jordi Rosell, Carlos Lorenzo, Josep Vallverdu', Rosa Huguet, Antoni Canals, and Jose' Mari'a Bermu' dez de Castro

2010 Cultural Cannibalism as a Paleoeconomic System in the European Lower Pleistocene: The Case of Level TD6 of Gran Dolina (Sierra de Atapuerca, Burgos, Spain). *Current Anthropology*, Vol. 51 No. 4 pp539-549. Chicago, Illinois.

Cole, James

2017 Assessing the calorific significance of episodes of human cannibalism in the Palaeolithic. *Scientific Reports*.

Fernández-Jalvo, Yolanda, J. Carlos Díez, Isabel Cáceres, and Jordi Rosell

1999 Human cannibalism in the Early Pleistocene of Europe (Gran Dolina, Sierra de Atapuerca, Burgos, Spain). *Journal of Human Evolution*, Vol. 37 pp591-622.

Garcia, Nuria and Arsuaga, Juan Luis

1999 Carnivores from the Early Pleistocene hominid-bearing Trinchera Dolina 6 (Sierra de Atapuerca, Spain). *Journal of Human Evolution*, Vol. 37 pp 415-430.

Peréz-Peréz, Alejandro, Marina Lozano, Alejandro Romero, Laura M. Martínez, Jordi Galbany, Beatriz Pinilla, Ferran Estebananz-Sánchez, José María Bermúdez deCastro, Eudald Carbonell, and Juan Luis Arsuaga

2017 The diet of the first Europeans from Atapuerca. *Scientific Reports*.

Rodríguez, Jesús, Zorrilla-Revilla Guillermo, and Mateos Ana

2019 Does optimal foraging theory explain the behavior of the oldest human cannibals?.
Journal of Human Evolution, Vol. 131 pp228-239.

Saladié, Palmira, Rosa Huguet, Antonio Rodríguez-Hidalgo, Isabel Cáceres, Montserrat Esteban-Nadal, Juan Luis Arsuaga, José María Bermúdez de Castro, Eudald Carbonell

2012 Intergroup cannibalism in the European Early Pleistocene: The range expansion and imbalance of power hypotheses. *Journal of Human Evolution*, Vol. 63 pp682-695.