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Short articles



FROM FROZEN-MEAT CARVING TO IVORY SCULPTING

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Taphonomic studies of skeletal remains focus on the analysis of bones and their articulation, cooking, secondary usages and disposal. Lithic tools are also studied from the point of view of their typology, quantity, wear, source, and settlement patterns. What is totally absent from the literature is the processing of frozen carcasses. Yet, frozen carcasses must have been a common occurrence in the cold zones, at least seasonally. Upper Palaeolithic people may even have integrated frozen meat into their food processes in an unexpected way.

It is possible to cut fresh meat with a wide range of sharp tools. When meat is frozen, however, the most efficient cutting method is to use a lithic blade to slice / shave off pieces of flesh. A lithic blade provides an efficient combination of friction and fracture energies. Blunted on one edge, blades transmit the energy of the fingers efficiently and minimize injury.

Once acquired, the proficiency of cutting frozen meat with blades can be employed to manipulate the fracture properties of hard materials such as wood, bone or ivory for utilitarian and aesthetic purposes. If such is the case, then frozen carcasses likely played an important role not only in the systematic spread of blades, but also in the development of carving and the production of portable art in Europe, where freezing conditions are more salient. It is likely that frozen carcasses played a considerable role in the emergence of the Upper Palaeolithic technological and artistic traditions in Europe, the making of ivory figurines in particular.

Ivory sculpting

Recovered artefacts often reveal a lot about how they were made thanks to the marks they bear which allow us to identify the tool used to make the artefact, its shape, type and constitution. For example, blades used for whittling usually show two types of wear: polishing along the edge of the tool, which gradually fades the farther from the edge; and striations appearing as microscopic lines perpendicular to the edge or slightly inclined from it, indicating the direction of the hand movement. Those that wear characteristics of whittling tools appear on the ventral side and are less distinctive on the other side.

Most of the early Upper Palaeolithic figurines and personal ornaments in Europe were made of ivory, although bone, antler, talc and clay were also used. The repertoire of preserved ivory artefacts includes fine human and animal figurines, batonnets, beads, knives, points, and unfinished items. They come from western and central European Aurignacian sites, including Spy, Geissenklösterle, Vogelherd, Kostenki and Avdeevo.

As Semenov has indicated, most of the ivory objects, particularly figurines, could not have been made without whittling blades, which explains the widespread presence of prismatic tools in the Upper Palaeolithic.

Indeed, prismatic blade technology is predominant in the most significant Aurignacian sites. At its lowest level, for example, Kostenki 14 contains various blades, end-scrapers, burins, pièces esquillées, and small bifaces. These tools were recovered with bone points, antler mattocks, worked ivory, perforated shell ornaments and an unfinished ivory carving of a human figurine. At Geissenklösterle cave, refitted nodules excavated from Aurignacian layers show that they were all used for blade production.

Reliance on blades is also indicated in the increase of split-base points, dating to the early Upper Paleolithic in western and central Europe. Burins and chisels, also present, were used for making notches and hollows on figures, removing excess material, and smoothing the contours and giving definition to the details.

The ivory supply for these artefacts came mainly from mammoth tusk, either fresh or fossil. Reconstruction of climate, based on the evidence of sedimentology and environment, suggests that ivory-working took place here during a period of extreme cold.

Carving ivory is limited by the internal structure of the tusk and the growth patterns of its enamel and dentine (Schreger lines). Often, to make a figurine, the tusk's natural shape is utilized and corrected rather than totally transformed. First, a piece of ivory is cut to the desired proportion using transverse incisions consisting of shallow notches around the circumference of the tusk and penetrating one or two layers of ivory. The ivory is then broken by applying pressure. For a longitudinal splitting of ivory, grooves are applied.

Although some flaking is possible by exploiting cracks in the surface of the cortex, the reduction process consists mostly of whittling, shaving and smoothing. Figurines were carved with unretouched and retouched tools, with final polishing eliminating most traces of the carving. The tools used, particularly blades, produce thin parings that curl up into circles and hardly cause friction on the upper side. Unfinished ivory objects, lithic tools and small curved shavings have been found in caves such as Vogelherd and Geissenklösterle. Traces of whittling on ivory and bone objects from Kostenki I are numerous.

These reduction steps are all present in a figurine from Avdeevo, which shows traces on its surface of whittling with a knife, and clear furrows cut with the angle of a burin that show best on the body and legs.

The reductive processes involved in tool making and frozen meat carving were applied to ivory, bone and soft stone, and sculpture emerged as an artistic phenomenon with social underpinnings and implications.





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