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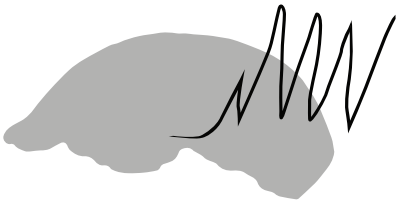

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Cover image: *Homo erectus* holotype cranium and shell engraving, Trinil, Indonesia (Dubois Collection, Naturalis, Leiden, The Netherlands)

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Abstracts
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The weapon system behind the point: Early Gravettian hunting technologies at Maisières-Canal

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Hunting and preparing for the hunt – manufacturing, using, and repairing the equipment – were undoubtedly important and time-consuming activities in the lives of Palaeolithic groups [1, 2]. Studying hunting equipment in detail is thus essential for our understanding of a crucial aspect of Palaeolithic human behaviour and allows us to understand developments in human technologies and problem-solving across wide geographical and chronological ranges. Yet, our current knowledge about the development of prehistoric hunting technologies (projecting modes, weapon design) is mainly based on a few important but isolated discoveries of organic remains in Europe, such as the Lower Palaeolithic spears or spear fragments recovered at Schöningen, Lehringen, and Clacton-on-Sea, the Solutrean and Magdalenian spear-thrower hooks, and the arrows and bow fragments from Mesolithic and Neolithic contexts [3].

In this paper we demonstrate how to exploit the full potential of a much more durable and ubiquitous type of remains, lithic armatures, in the study of Palaeolithic hunting practices. We present the results of a collaborative project that combines technological and functional analysis with experimental archaeology, and aims at understanding the manufacture and use of a specific lithic projectile type, the Early Gravettian tanged point. Our archaeological material comes from the Gravettian occupation phase of the open-air site of Maisières-Canal (Belgium), dated between 33 and 32 cal BP [4]. This stratigraphically well-isolated sequence has yielded an important collection of tanged points that are in excellent state of preservation.

A combined study of the finished armatures and the related shaping waste allows us to present a new, more comprehensive view of the characteristics and constraints of the shaping method. The points were made on large, thin blades produced by hard or soft stone percussion, and subsequently shaped by several generations of direct, flat, invasive (sometimes overshot) removals with an organic hammer. These points, which all display a long, elaborately shaped tang, thus form a distinct tool type with a unique *chaîne opératoire* and a very particular morphology in terms of weapon design and hafting systems.

Many of the points show clear macroscopic and microscopic damage from impact that can be attributed to their use as armatures. The morphology, the organisation, and the orientation of the traces allowed us to propose specific hafting modes that were tested experimentally. The experimental program focused on both the details of the hafting mode and the mode of projection. In addition, alternative tool uses such as butchering were considered, and the points were framed within the broader functional context of tanged and non-tanged tools recovered at the site. The results allow evaluating what kind of weapon system the tanged points were part of, and what their place was in the Early Gravettian technology. We argue that when approached from an experimental and techno-functional point of view, lithic projectile points can help us understand the development of hunting technologies as well as broader patterns of technological change.

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