Paleolithic projectiles and their projecting mode

*PhD research project of **Justin COPPE***

Research goals:

Improve the methods for the recognition of Paleolithic armatures

Several studies have focused on finding macroscopic and microscopic evidence that would allow the identification of lithic projectile points in the archaeological record. The number of experimental programs dedicated to the subject, however, has been poor and comparisons are often made between experimental and archaeological pieces that are morphologically very different. My goal is to improve the methodology for the recognition of Paleolithic points based on large-scale systematic experimentation

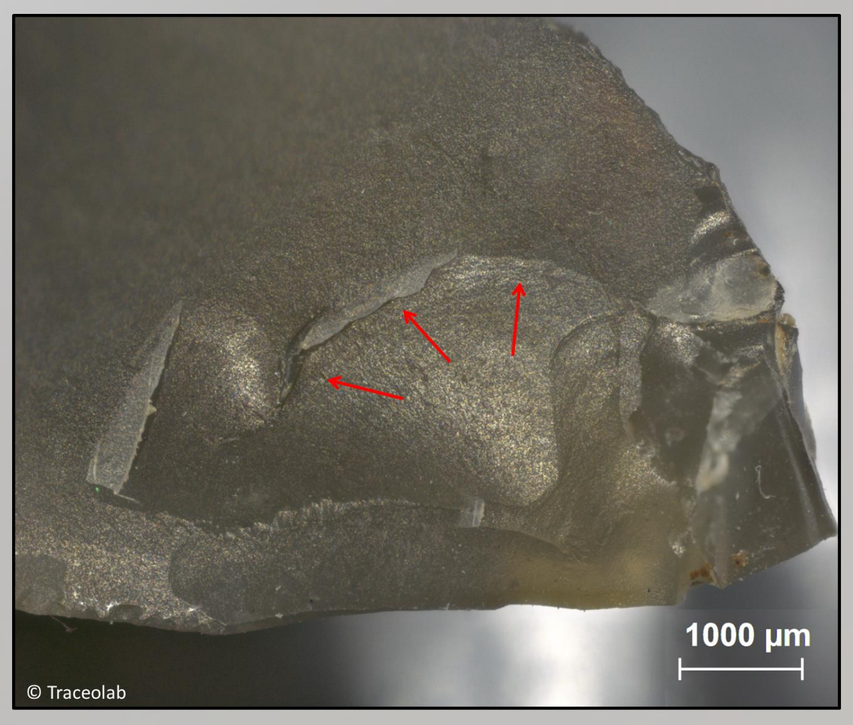
The identification of a projectile point is based on the macro-fractures and microscopic traces that result from impact. Unfortunately, the current vocabulary for describing these traces is insufficiently systematic, precise and widespread. I hope to contribute to the construction of a better terminology that is based on an attribute system.

Experiments in three stages

1. Exploratory experiments will generate the majority of the experimental material. It concerns a series of systematic experiments that serve as groundwork for the other experiments. Points are shot at an artificial target, consisting of horse bones incorporated in anatomical position in a ballistic gel

2. Laboratory experiments to target specific variables. Experiments are performed in laboratory conditions in order to be able to control ballistic parameters. A high-speed camera (FASTCAM SA5 Ultra High Speed Video System) will be used The targets are similar to those used in phase 1.

3. Realistic experiments with replicated archaeological points on dead animal targets. Experimental conditions are adapted to the archaeological context. These type of experiments can be performed throughout, but they will be organized especially in the context of the analysis of archaeological material.



Complex projectile fracture : the three types of termination (hinge, step, feather), defined by the hoho comitee, are visible on the same termination.

Identify the projecting mode by studying stone tips

The appearance of different projecting modes has played an important role in technological and behavioural changes that occurred during the Palaeolithic, but only the lithic components of these projection systems are generally recovered. At this moment, no method yet exists to connect a damaged stone point to a particular projecting mode. Therefore, experiments are organised to explore the potential of a microscopic approach in identifying past projection systems.

Experiments :

In order to gain improved insight into the formation process of macro- and microscopic traces, experiments are focussed mainly on the influence of:

- Stone point morphology
- Mode of projection
- Hafting system
- Raw material

The generated experimental data will allow an understanding of the parameters determining the formation of macro- and microscopic traces from projectile impact and they will provide a referential framework for the identification of armatures and projecting modes in the archaeological record. Sites from the European Middle and Upper Palaeolithic period will be targeted mainly, next to Middle and Late Stone Age sites in Africa. Conclusions from this study should provide a reliable basis for future analyses of archaeological material. Ultimately, this study should contribute to a better understanding of the appearance and development of projectile technologies in the Paleolithic.
My research is part of a larger project on the evolution of stone tool hafting in the Paleolithic, led by Dr. Veerle Rots.

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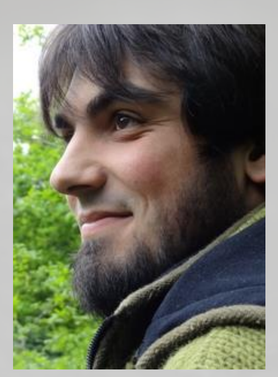

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