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# Controlled experiments in flake production – what have we learned?

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## Résumé

The study of lithic artifacts has changed considerably over the past several decades, from a primary focus on variability in formal characteristics (for example, size, shape, and placement of retouch) to an emphasis on identifying the processes that underlie such variation. Replicative knapping experiments have played an early, and crucial, role in reconstructing methods and techniques of stone tool production that may have been used in the past, contributing greatly to our understanding of how particular variables can be manipulated to achieve particular results. The identification of these relationships has also provided a better understanding of the knapping choices of prehistoric people, their skills, learning processes, and cultural transmission. More recently, the design of lithic experiments has been broadened to investigate these relationships in a more objective and quantitative fashion. Such controlled experiments, which utilize a robotic device to produce a flake, make it possible to isolate the effects of a single variable on a resulting flake's formal characteristics and, from there, to examine more complex interplays of several different variables in combination. In this paper, we will present some of the main results on the formation of lithic artifacts that emerged from these experiments and discuss the contributions that this experimental approach makes to our understanding of the fundamentals of the knapping process. Principally, these are related to how platform depth and shape, exterior platform angle, core surface morphology, hammer type, and raw materials affect blank size and shape. While these results have confirmed some conclusions drawn from replicative experiments, they have also demonstrated the importance of certain variables relative to others. Above all, both controlled and replicative experiments can be considered as being complementary to each other, with the former better able to explore the formation of individual flakes while the latter is more suited to reconstructing core reduction sequences.

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\*Intervenant

**Mots-Clés:** lithic technology, experimental archaeology, flake formation, controlled experiments