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# Identifying the variability of Levallois reduction sequences in Altai (Russia): a re-examination of the evidence

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## Résumé

The Altai range, in the South of the Russian Federation, has yielded an important series of prehistoric assemblages in various contexts (caves, shelters and open-air sites). Recent anthropological and archaeological studies have established the significance of this area, with complex peopling events involving at least three different human species, Neanderthals, Modern Humans and Denisovans, the latter being exclusively associated with Altai assemblages. However, if the cultural background of these hominins' occupation is well defined for the beginning of the Upper Palaeolithic, a better characterisation of the previous period's productions is yet to be undertaken. Levallois technology has been identified in many Altai sites, and is considered an important characteristic of the Middle Palaeolithic and, according to some authors, beginning of the Upper Palaeolithic of this region. Its presence is attested in all the caves and open-air sites related to these periods, except only Chagyrskaya – the lithic material of which displays very singular technological features. That is why Levallois is regarded as one of the defining cultural features of this region. However, if previous studies allowed the identification of the presence of Levallois in those sites, they only did so in terms of presence/absence through a typological approach. These kinds of studies focus on the aspect of the cores and final products, and do not allow us to deal with the complexity and variability of the Levallois reduction techniques. To address this issue, we have undertaken a review of material coming from some of the key Altai sequences, while trying to reconstruct the different *chaînes opératoires* implemented for the production of the desired products that had been previously recognized as Levallois. Results have shown that there is a greater variability than what was concluded with typological studies, both at inter and intra-sites scales. This challenges the dominant pattern of the Levallois reduction sequences and highlights the regional cultural specificities of this production.

**Mots-Clés:** lithic technology, Levallois concept, chaîne opératoire, Altai mountains, Middle Palaeolithic, Neandertal

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