three approaches: morpho-technical, use-wear and residues analysis. Morpho-technical analysis implies the study of extracting strategies from the quarries and, an experimental program haves allowed contrast our hypothesis (Rodríguez, et al. 2007; Rodríguez, et al. 2006; Mangas, et al. 2008; Rodríguez, et al. 2010). The analysis of the archaeological repertoire, both in domestic and granaries context, has made possible to establish a basic typology of the finished tools (Naranjo, 2009). The use-wear approach is focused on the analysis of the stigmas present in the active surfaces of both experimental and archaeological artefacts, which have been observed on three levels: de visu, low and high magnification (Procopiu et al, 2002. Portillo, 2008). The third strategy deals with the results obtained with the analysis of residues. Phytoliths, starch and other kinds of material (such and red ochre) have been identified providing reliable data of the nature of the processed remains (Afonso, 2012)

Tool use and hominin evolution

Flagship paper: Connecting wear traces, residues, lithics and human evolution

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In this review, we outline what we have learnt from the studies of use-wear and residues in major regions of the world among particular hominins – the group consisting of modern humans, extinct human species and our immediate ancestors. We also identify gaps in understanding and pose issues for future studies that may better position functional analyses to address grand challenges for archaeology and test ideas about human evolution. The link between tools, cognitive ability and evolution appears straightforward. Smarter people will develop better tools and access otherwise inaccessible resources that demand smarter technology. Better tools might be more effective, easier to assemble and sometimes they might be more complex. However, smarter tools could be simpler (rather than more complex), multi-functional or highly specialised. We should be as wary of assuming directionality in the sophistication of stone tool use as we are of directionality in evolution. The hypothesis that tool use is a major driver of stone artefact assemblage variability is questionable. Although intended tool use no doubt places constraints on design, tool form and the selection of materials, research over the last few decades has demonstrated that there is no simple relationship between tool use and typological classes that define Palaeolithic industries. We consider use-wear and residue evidence for the exploitation of three classes of resources: plant, animal and stone/mineral resources, next to particular evidence for smart technologies considered important in human evolution: fire, hafting, poison. The evidence from flaked stones and grinding stones is presented chronologically by region and discussed in the context of associated hominin taxa. Our general interest is in how to rethink use-wear and residues on stone tools to target particular questions so that we can better sample the archaeological record and evaluate hypotheses about human evolution.