

Technological assets for the emergence of the Acheulean? Reflections on the Kokiselei 4 lithic assemblage and its place in the archaeological context of West Turkana, Kenya.

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On the western side of the Turkana basin, the sedimentological members of the Nachukui formation expose a unique succession of archaeological and palaeontological site complexes. As a consequence of Plio-Pleistocene neo-tectonic activity, these site complexes range from 0.7 Ma in the north to 4.4 Ma in the south. During the last twenty years, numerous lithic assemblages dated from 0.7 to 2.34 Ma were brought to light in this stratigraphic context by the Mission Préhistorique au Kenya. Following the analysis of the oldest and most remarkable of these sites, we propose a model clarifying the chronology and possible operative modalities of the first stone knappers; the technological components which around 1.76 Ma led to a new method in stone working: shaping. Within this new bipolar technical system, the flake can be either a fully expected product, only a blank, or even waste, as the worked block or pebble of raw material switches from a core status to a unique shaped artifact.

At Lokalalei 2C (LA2C), Kokiselei 5 (KS5) and 4 (KS4), numerous refits refine the technological analysis and make it irrefutable. It appears that the early prehistoric stone knappers gradually substituted newly mastered technical advances for the initial selection of blocks or pebbles naturally displaying a suitable shape. Such a selection allowed knappers, to get around significant, conscious, yet insurmountable technical gaps.

Thus, a conceptual and technical mastery of the third dimension of the worked volume, which materialized at KS5 in an effective control of the making and maintenance of striking platforms, released the Oldowan stone knappers from constraints imposed by the initial morphology of blocks. This determining leap in technology broadened their scope of investigations. This is why shaping was performed in different forms at KS4, alongside the debitage of flakes. The control, even if still uncertain, of series of technical gestures when carrying out the newly investigated operative chains, as well as the metrical parameters of the new tested modules, led the KS4 stone knappers to look for new raw material sources offering blocks of particular modules and morphologies. However, alongside the use of 'light' hard hammerstones, several refits at KS4 attest also to the splitting of thick pebbles on anvil using heavy hard hammerstones to obtain the required block morphology without modifying the initial dimensions.

The alternance of conceptual advances, first concretized in the appropriate selection of natural block shapes, then in major technical innovations, seems to have been the rhythm, of a very slow and hesitant tempo, leading to the formalization of the oldest Acheulean lithic

assemblages, the shaping of large unifacial, bifacial or trihedral tools being its technological signature.