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The emergence and significance of heavy-duty scrapers in ancient stone toolkits

L'émergence et la signification des heavy-duty scrapers dans les assemblages lithiques archaïques

Deborah Barsky^{a,b,*}, Josep-Maria Vergès^{a,b}, Stefania Titto^{a,b},
Miquel Guardiola^a, Robert Sala^{a,b}, Isidro Toro Moyano^c

^a Institut Català de Paleocologia Humana i Evolució Social, c/Marcelli Domingo s/n, Campus Sesceladís, URV, Edifici W3, 43007 Tarragona, Spain

^b Area de Prehistoria, Universitat Rovira i Virgili (URV), Avinguda de Catalunya 35, 43002 Tarragona, Spain

^c Museo Arqueológico de Granada, Carrera del Darro 41–43, 18010 Granada, Spain

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ABSTRACT

Heavy-duty scrapers are documented as a specific morphotype in ancient African and Eurasian toolkits from the Oldowan into the Acheulian. They are characterized by a flat platform perpendicularly oriented to a carinated edge. The convex surface of that edge displays semi-peripheral, unidirectional removals associated with steep retouch and/or crush marks. This morphotype has been described from numerous sites covering a long temporal scale and are diversely referred to in French as “*rostro-carénés*” or “*nucléus-racloirs*” and in English as “*massive scrapers*”, “*core scrapers*”, “*large scrapers*”, or “*heavy end-scrapers*”. Morpho-technological definitions and interpretations are reviewed to track the origin and evolution of heavy-duty scrapers over time and space. Results show that tools referred to as heavy-duty scrapers were made on thick cobbles during the Oldowan, and later, at the onset of the Acheulian, on Large Flakes, while smaller-sized items in Late Acheulian sites assume end-scraper morphologies. But should all of these tools really be grouped under a single denomination? Experimental work explores whether heavy-duty scrapers are the result of knapping processes, or if their morphology could be derived from other kinds of activities. Chronological continuity of the attributes specific to heavy-duty scrapers points to their role in ancient toolkits, suggesting that these scarce but ubiquitous primitive implements are, on equal footing with chopper-cores, one of the oldest morphotypes in the world.

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RÉSUMÉ

Les *heavy-duty scrapers* sont documentés comme un morphotype spécifique dans de nombreux assemblages lithiques oldowayens et acheuléens en Afrique et en Eurasie. Ils sont caractérisés par une surface plate, orientée perpendiculairement à un bord de forme carénée. La surface convexe de ce bord révèle des enlèvements et/ou des retouches multiples, semi-périphériques et unidirectionnelles, souvent associés à des écrasements. Ce

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* Corresponding author. Institut Català de Paleocologia Humana i Evolució Social, c/Marcelli Domingo s/n, Campus Sesceladís, URV, Edifici W3, 43007 Tarragona, Spain.

E-mail address: dbarsky@iphes.cat (D. Barsky).

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morphotype a été décrit dans de nombreux sites couvrant une longue période temporelle et sont diversement désignés comme « rostro-carénés » ou « nucléus-racloirs » en français, et *massive scrapers*, *core scrapers*, *large scrapers* ou encore *heavy end-scrapers* en anglais. Cet article examine les définitions et les interprétations morpho-technologiques de ces outils, afin de pouvoir tracer leur origine et d'observer leur évolution dans le temps et dans l'espace. Les résultats montrent que les outils répondant à la dénomination *heavy-duty scrapers* ont été fabriqués sur des galets épais pendant l'Oldowayen et, plus tard, au début de l'Acheuléen, sur de grands éclats (*sensu stricto*). Pendant l'Acheuléen tardif, d'autres objets à bord caréné ont été aménagés intentionnellement sur des supports plus petits, assumant ainsi la diversité formelle des « grattoirs ». Tous ces derniers outils devraient-ils alors être regroupés sous la même dénomination? En outre, nous proposons d'explorer la signification du concept de *heavy-duty scraper* à travers un programme de travail expérimental, et de discuter si la morphologie de ces objets résulte simplement de procédés de débitage unidirectionnels récurrents, ou bien si leur configuration pourrait être dérivée d'autres types d'activités, en l'occurrence, celles liées à la percussion. La continuité chronologique des attributs spécifiques aux *heavy-duty scrapers* souligne leur rôle spécifique dans les assemblages lithiques anciens, ce qui semble suggérer que ces outils primitifs, toujours peu représentés dans les assemblages lithiques, mais cependant omniprésents, devraient être considérés, sur un pied d'égalité avec les choppers, comme un des morphotypes les plus anciens au monde.

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1. Introduction

Throughout much of the Lower Pleistocene in Africa and Eurasia (*ca.* 2.5–0.78 Ma), hominin technological aptitude is reflected by the non-standardized flakes and simple but well-structured cores composing their material culture. These ancient toolkits are attributed to the Oldowan (Leakey, 1936) Techno-Complex, a cultural unit lasting nearly 2 Myrs (Barsky, 2009). Throughout the Oldowan, stone knapping strategies maintained low diversity, while reflecting variability through subtle innovations developed within the unifacial-unidirectional and orthogonal knapping strategies (Carbonell et al., 2009, 2016). Small cores and flakes are the most common items, but assemblages also comprise larger, summarily modified “heavy-duty tools” and “utilized material” (Leakey, 1971), frequently displaying traces of percussion (Barsky et al., 2015) or pounding (Isaac, 1986). This feature of Oldowan assemblages has long been a source of semantic and interpretative inconsistencies, notably because of difficulties relating to categorizing objects that do not fit neatly into any of the defined typological groups. At the root of this polemic is the low degree of standardization, which characterizes Oldowan tools. Indeed, how might we recognize tool-types from within the range of Oldowan formal variability when it is so largely dictated by the quality and availability of raw materials (Goldman-Neuman and Hovers, 2012)? One solution has been to consider use-wear on worked edges as a determining factor with which to distinguish “cores” from “tools” (de la Torre and Mora, 2005; de Lumley and Beyene, 2004; de Lumley et al., 2005; Leakey, 1971). This key notion places implements with percussion stigma in a different link within the *chaîne opératoire* (Soressi and Geneste, 2011), setting these ‘used’ items apart from flaked ones (cores) and projecting them into the realm of ‘tools’.

The most commonly documented Oldowan tool ‘type’ is the *chopper* (Movius, 1943), which, perhaps because of its technical simplicity, presents a high degree of

morphological variability for which different authors have proposed descriptive (Collina-Girard, 1986; Leakey, 1971) or conceptual (Carbonell et al., 1983, 1995; Laplace, 1972, 1974) study methodologies. Analysis of the Oldowan assemblages from Orce (Barsky et al., 2015) reveals that some macro tools (i.e. intentionally repeated morphotypes) exist only within site-specific contexts because of the particular features of the raw materials used there (see fig. 6 in Barsky et al., 2015). It follows that tool ‘types’ might not necessarily be common to different Oldowan sites. However, it may be assumed that the persistence of a specific form over time must be indicative of a task-specific shape and size relationship. Recent enlargement of the archaeological record and renewed interest in the study of archaic industries continue to fuel discussions about just where to draw the very fine line separating Oldowan core forms from tools. Examples demonstrating this conceptual tangle are terms like “*chopper-core*”, or “*core-tool*”, coined in the 1970s and still largely employed today. In Oldowan studies, this fine conceptual boundary has motivated the elaboration of systematic techno-typological manuals intended to overcome this challenge. But growing awareness of the influence of external impact factors on assemblage morpho-technical features, such as raw material size and qualitative variability or changeable site contexts, raises questions about the value of maintaining strict categorical separations within the Oldowan (Carbonell et al., 2009, 2016; Isaac, 1986; Shea, 2013; Toth, 1985). The core-tool dichotomy is so significant because tools are viewed as “standardized” items that reflect the repeated manufacture of a planned model in stone. When this template is acquired and transmitted through time and space, it becomes emblematic of human culture itself and, in the traditional, typological sense, carries the burden of chrono-cultural meaning. The shift from opportunistic flake production to the intentional shaping of tools (on a reasonably large scale) is a major feature marking the arrival of an entirely new techno-complex: the Acheulian. This paper examines the case of heavy-duty scrapers

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