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The function of recycled lithic items at late Lower Paleolithic Qesem Cave, Israel: An overview of the use-wear data

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ABSTRACT

The study of lithic recycling in Paleolithic cultures throughout the Old World is increasingly becoming a topic of interest for many scholars. Technological analyses, refitting, and spatial analyses are disclosing the "recycling behavior" of many contexts, especially those of Lower and Middle Paleolithic sites. Still lacking, however, is a functional approach to the subject, which would certainly add new pieces to this intriguing jigsaw puzzle.

Use-wear analysis, one of the most powerful methods to reach functional interpretations in lithic finds, can greatly improve our understanding of Paleolithic recycling behavior. Even in those cases where post-depositional alterations affected lithic items, use-wear analyses may produce important data despite the decrease in detail or less than optimal conditions of preservation.

At the late Lower Paleolithic site of Qesem Cave, the high degree of conservation and preservation of the lithic tools maximizes the inference potential of this method. In this article, functional data are summarized following a study of a large sample of Amudian parent flakes (flakes from which were produced cores on flakes, termed COF-FFs) as well as recycled products (blanks produced from COF-FFs). Confirming the inference potential of use-wear analyses, this data allows for the delineation of functional peculiarities of the studied items, which, despite first impression, are anything but expedient. Moreover, the current use-wear analysis expands the scenario outlined by the technological study of the lithic recycling phenomenon at Qesem Cave, confirming its own role in the complex techno-functional system practiced by the hominins of Qesem Cave.

1. Introduction

Odell (1996) stated that although the practice of recycling was as prevalent in the past as in the present, lithic technologists have paid little attention to the phenomenon, probably because its identification in archaeological contexts was problematic. Nevertheless, recent developments in technological analyses, some of which are presented in this volume, have greatly enhanced our understanding of recycling practices and methods in various Paleolithic contexts. A functional perspective complimenting current knowledge may be achieved through use-wear analysis. Recent examples of use-wear analyses of recycled items, some of which are presented in this volume, show the potential of this method when applied in tandem with a thorough technological analysis. To date, in most lithic studies, recycling behavior is observed primarily through the technological analysis. However, the combination of such data with functional aspects, allows researchers to see both sides of the same coin, or the same tool in this case, offering a closer view and deeper understanding of the meaning of recycling behavior in Paleolithic times.

At the late Lower Paleolithic site of Qesem Cave, recycling was first identified while studying technological aspects of the excavated lithic assemblages (see Assaf et al., 2015; Parush et al., 2015). Reconstructing the scale and complexity of recycling at this site, results indicate that recycling continuously played a significant role in lithic production strategies among all lithic assemblages of Qesem Cave.

Assaf et al. (2015) and Parush et al. (2015) clearly demonstrated that recycling was not a minor technological aspect, but rather an integral part of the system, as were blade production, scraper production, and the Quina technique (Gopher et al., 2005; Lemorini et al., 2006; Barkai et al., 2006; Shimelmitz et al., 2011). Moreover, following these studies, variability emerged in lithic recycling in

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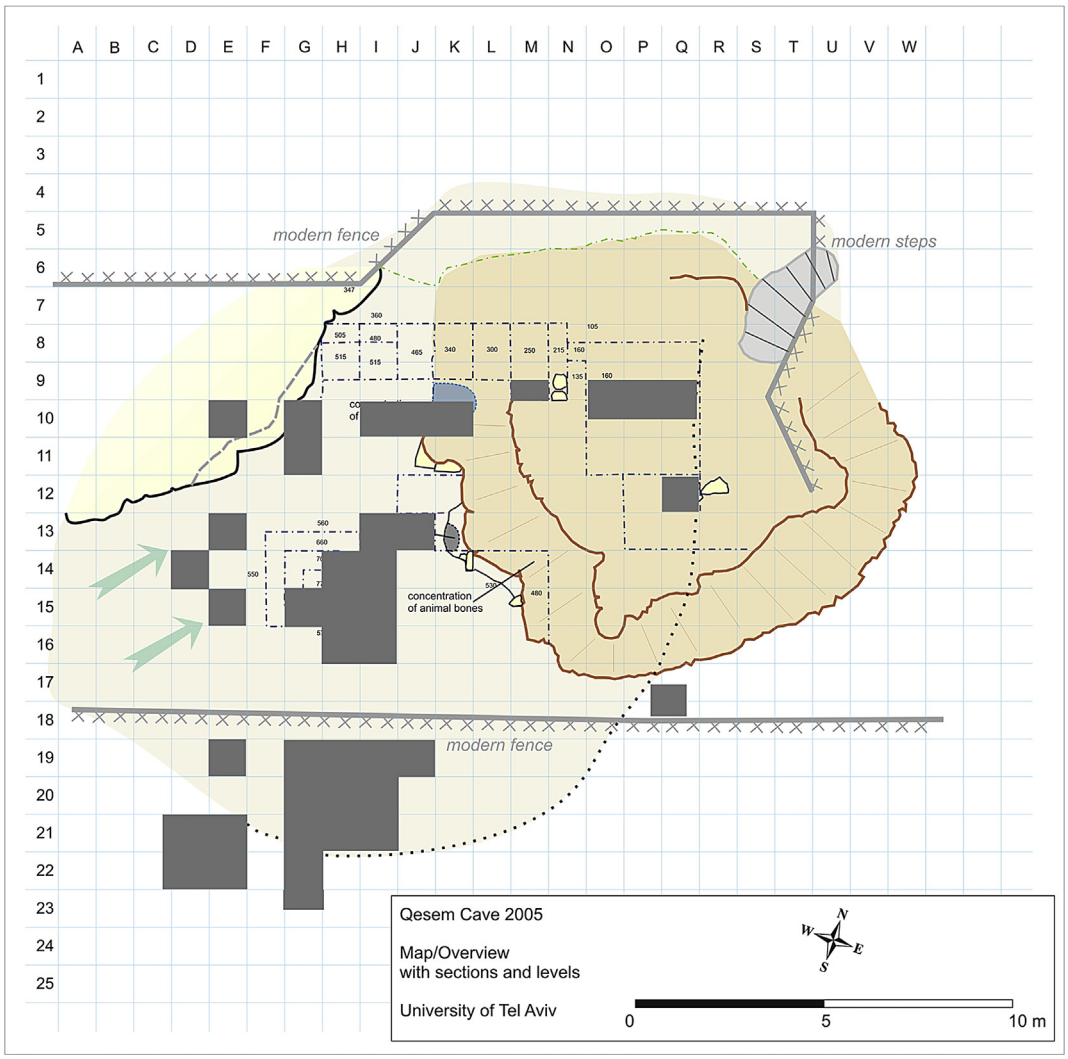

Fig. 1. Map of the site showing the area from which the lithic studied sample originated (grey squares).

both cores (parent flakes, termed cores on flakes or *COF-FFs*, see definitions below) and their products (blanks produced from these COF-FFs), indicating a well-established array of recycling. These insights and the significant role of the lithic industries at Qesem Cave coupled with the high degree of preservation of the excavated lithic artifacts, called for use-wear analysis to elucidate the full scope of behavior recorded at the site.

Use-wear analyses, both completed and those that are still in progress, clearly show that blades at Qesem were employed particularly in butchery (Lemorini et al., 2006) while Quina scrapers were long-lasting tools, used (with or without a haft), re-sharpened, and re-used, especially in the processing of hide and wood (A. Zupancich and C. Lemorini, work in progress). Experiments with replicas of regular double ventral flakes (see definition below) showed the cutting potential of these products of recycling (Barkai et al., 2010) found at Qesem Cave and their efficacy in slicing meat and cutting tendons with only a few strokes.

In the present study, we focus on a large sample of COF-FFs and their recycled blank products, originating from Amudian assemblages (see definitions below), randomly selected from various areas of the cave. Having clarified the state of preservation of these items and their interpretative potential, the functional analysis described herein was aimed at finding out to what extent the recycled items show functional specialization, that is, whether different types of recycled items show specific functions.

2. Materials and methods

We studied a total of 237 items comprising 103 COF-FFs and 134 products of COF-FF recycling (blanks produced from cores on flakes) from Amudian assemblages originating in different areas of the cave (Fig. 1). Below is a short introduction to the terminology and definitions used in this paper regarding lithic recycling at Qesem Cave. More detailed account may be found in Assaf et al. (2015) and Parush et al. (2015).

2.1. 'Parent flakes'/cores-on-flakes/flaked flakes (COF-FFs)

A flake from which a smaller flake (or flakes) was removed. . These items were classified according to the face from which the product flake(s) was removed, whether from the ventral face [COF-FF (single/multiple) ventral removal], or the dorsal face (COF-FF dorsal removal), or both (COF-FF ventral and dorsal removals), although ventral removals predominate. COF-FFs at Qesem Cave vary in shape and size. Blanks used as COF-FFs were not intentionally fashioned in order to be transformed into COF-FFs but