



Contents lists available at ScienceDirect

# Quaternary International

journal homepage: [www.elsevier.com/locate/quaint](http://www.elsevier.com/locate/quaint)

## The recycling of flint throughout the Lower and Middle Paleolithic sequence of Tabun Cave, Israel



Ron Shimelmitz

Zinman Institute of Archaeology, University of Haifa, Mount Carmel, 31905, Haifa, Israel

### ARTICLE INFO

#### Article history:

Available online 8 September 2014

#### Keywords:

Lithic technology  
Recycling  
Lower Paleolithic  
Tabun Cave

### ABSTRACT

Tabun Cave provides an opportunity to examine transformations in the methods and intensity at which hominins recycled flint items along a sequence of ca. 500 ky from the Lower Paleolithic to the Middle Paleolithic periods. The studied sequence is composed of results from Jelinek's excavations and Ronen's excavations which sampled different parts of the stratigraphic section of Tabun Cave, together covering 16 m depth of superimposed archaeological layers. The recycling of flint is examined using three aspects: (1) the presence of patinated items, (2) the phenomenon of 'handaxes with a preferential flake scar' along with other aspects indicating the recycling of handaxes as cores, and (3) the presence of items which are both cores-on-flakes and tools, indicating a complex life-history. The changes in their frequencies and characteristics along the sequence are presented through a study of 20 assemblages spanning from the Acheulean, Lower Paleolithic to the early Middle Paleolithic.

© 2014 Elsevier Ltd and INQUA. All rights reserved.

### 1. Introduction

The recycling of lithic artifacts is reflected in different manners and was observed to be practiced within numerous industries ranging from the Paleolithic period (e.g. DeBono and Goren-Inbar, 2001; Barkai et al., 2010) to the Neolithic (e.g. Barkai, 1999), and even to the Bronze and Iron Ages (e.g. Shimelmitz, 2012; Shimelmitz and Zuckerman, 2014). While the definition of recycling is still being debated (e.g. Odell, 1996; Amick, 2014), in this paper I regard it as a manipulation on the item which changes its use from one mode into another. In some cases the recycling can be marked by a considerable time difference (discerned through the presence of patina). Although the phenomenon of recycling extends from the Paleolithic period to modern time, it is clear that different goals and mechanisms are at play within different cultural landscapes, especially in comparing the Paleolithic record to that of the modern world (Amick, 2014). The contribution of the presented study is in examining whether the modes of recycling of flint and their extent of use changes within the Paleolithic period, particularly in the timeframe of the late Lower Paleolithic and the early Middle Paleolithic of the Levant. This is conducted through the analysis of the unique record of Tabun Cave with its extensive sequence of layers (Garrod and Bate, 1937; Jelinek et al., 1973; Jelinek, 1982a, b; Ronen et al., 2011).

The study of the material from Tabun Cave not only provides a perspective on a long sequence of layers ranging from the Acheulean culture of the Lower Paleolithic to the Mousterian Middle Paleolithic, but also on the variability within the Acheulo-Yabrudian complex that constitutes the final part of the Lower Paleolithic in the Levant (Jelinek, 1990; Copeland, 2000; Gopher et al., 2010). The Acheulo-Yabrudian complex is characterized by three different facies, which are also often referred to as industries: 1) the Yabrudian with dominant flake production and the shaping of Quina scrapers, 2) the Acheulean with numerous handaxes, scrapers and flake production, 3) the Amudian with an intensive blade production and 'Upper Paleolithic tool types' (Copeland, 2000). While in the past they were often considered to represent different cultures (e.g. Rust, 1950; Garrod and Kirkbride, 1961), currently they are viewed as a variation within a single cultural complex (e.g. Jelinek, 1990; Copeland, 2000; Barkai et al., 2009; Shimelmitz, 2009).

While modes of recycling can be studied by various perspectives, in this study I use three aspects including patination, the transformation of handaxes into cores and the complex life history of items which are both cores on flakes (COFs) and tools. Using the examination of these three aspects along the sequence of layers from Tabun, in reference to both Jelinek's excavations and Ronen's excavation at the site, I will address the following issues: (1) Are the methods of flint recycling similar along the periods? (2) Are the methods of flint recycling similar along the three facies of the Acheulo-Yabrudian complex? Two alternative hypotheses are proposed accordingly: (1) all the examined modes of recycling

E-mail addresses: [rshimelmi@staff.haifa.ac.il](mailto:rshimelmi@staff.haifa.ac.il), [ronishim@gmail.com](mailto:ronishim@gmail.com).

demonstrate the same trends of change; i.e. in assemblages with numerous COFs with complex life history more items with patinated surfaces and handaxes used as cores are found. Such a scenario can be an indication of cases with intense local resource exploitation and can serve as an indication of changing mobility patterns or intensity of occupation within the cave. (2) The patterns of the examined modes of recycling demonstrate different trends of change. This will indicate that recycling is a complicated behavior not necessarily relating to raw material pressure. In order to examine these hypotheses I will first discuss separately the character of the patinated items, the use of handaxes as cores, and the group of items which are both COFs and tools. The relationships between these are thus examined and discussed.

## 2. Tabun Cave

Tabun Cave is located at the western edge of Mount Carmel, ~20 km south of Haifa. It was excavated by three different expeditions. D.A.E. Garrod first excavated the site in 1929–1934 and her results charted the periodical division of the Levantine Paleolithic (Garrod and Bate, 1937). A.J. Jelinek re-excavated the site in 1967–1971 (Jelinek et al., 1973; Jelinek, 1982a, b) and Avraham Ronen in 1975–2003 (Ronen et al., 2011). The cave's sediments are ~25 m deep and range from the Lower Paleolithic to the Middle Paleolithic periods.

Garrod divided the sequence she excavated into seven major Layers (A–G). This includes the triple division of the Middle Paleolithic layers (B–D) that are commonly referred to as 'Tabun D', Tabun C' and 'Tabun B' (Copeland, 1975). Below this are the Acheulo-Yabrudian (Layer E), the Acheulian (Layer F) and the so called 'Tayacian' (Layer G) layers (Garrod and Bate, 1937).

Jelinek's excavations were performed with a much higher resolution and include a step section of 10 m high, penetrating ca. two meters into Garrod's step section. Its upper part is placed at the interface of Garrod's Layers C and B and its lower part approximately at the base of Garrod's Layer E (Jelinek et al., 1973). Jelinek recorded in his excavations a series of 14 major stratigraphical units with 86 layers (Beds 1–85 and 90), many of these with additional internal divisions (Jelinek, 1982b, 1990). Unit I is chiefly attributed to 'Tabun C', the middle part of the Middle Paleolithic and is mainly characterized by Levallois technology with a high use of the preferential method. Units II–VIII suffered from various degrees of post depositional processes leading to a mixture of finds in some of the layers within these units (Jelinek, 1982b). Unit IX correlates to Garrod's Layer D and is part of the early Middle Paleolithic, characterized by Levallois production of elongated items (Jelinek, 1982a, b; Meignen, 1994; Shimelmitz and Kuhn, 2013). Units X–XIV (Jelinek, 1982b, 1990) correlate to Garrod's Layer E and are all attributed to the Acheulo-Yabrudian complex (Ronen et al., 2011). In Tabun Cave the three facies of the Acheulo-Yabrudian grade into each other in their typological and technological elements, a fact that led Jelinek (1982a, b) to argue that they represent a single technological tradition—the 'Mugharan Tradition'. Although the term 'Mugharan Tradition' is rarely still used, the idea that the three facies represent a single cultural complex in which the variation is a result of behavior, became the dominant explanation in current research of the Acheulo-Yabrudian (e.g. Barkai et al., 2009; Shimelmitz et al., 2011).

Ronen excavated different parts of the section and areas within the cave (Ronen et al., 2011), however in this study I refer only to his excavations along the lowest part of the cave, a six meter deep step of the section located directly below Jelinek's excavations, reaching bedrock (Fig. 1). This part of the section correlates to Garrod's Layers E–G (Shifroni and Ronen, 2000; Gisis, 2008). In order to

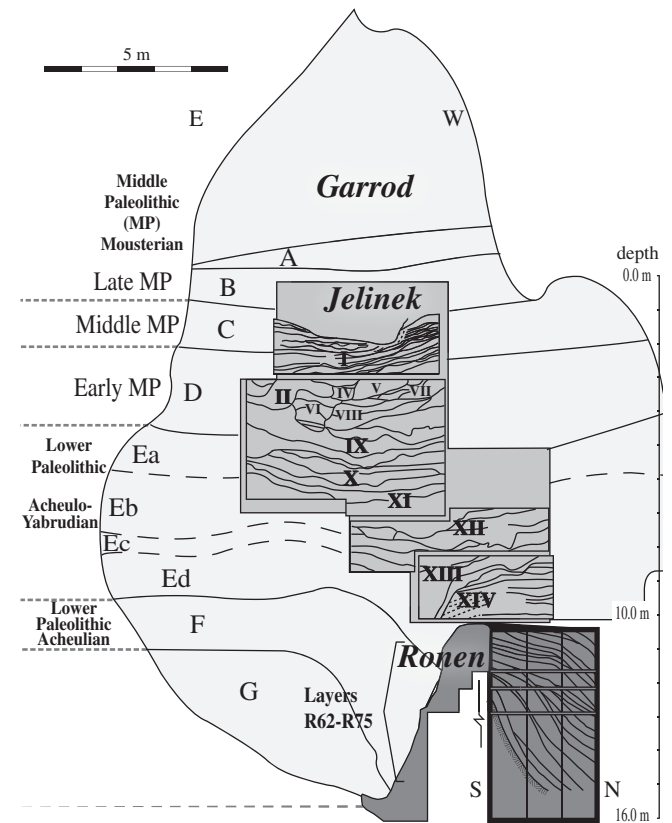


Fig. 1. General division of the section.

clearly differentiate between the layers excavated by Jelinek and Ronen the letters J and R were respectively added to each layer.

The industries throughout the Tabun sequence have been discussed in numerous reports by the excavators (e.g. Garrod and Bate, 1937; Garrod, 1956; Jelinek, 1975, 1977, 1982a, b; 1990; Ronen and Tsatskin, 1995; Ronen et al., 2011), as well as by specific technological studies (e.g. Rollefson, 1978; Meignen, 1994; McPherron, 2003; Gisis, 2008; Shimelmitz, 2009). Here I wish to state only a few points of importance regarding the assemblages studied (retrieved from the new analysis of the Tabun material; a collaborated project between the University of Haifa and the University of Arizona). The first note regards Unit X (Layers J70–J72) that was described by Jelinek et al. (1973) as 'transitional' and by Bar-Yosef (1994) as a mixture of industries/layers. In our new analysis we observed in Layer J72 only single Levallois items. A higher representation of Levallois items, either intrusive or "transitional", are found in the upper layers (J71–J70). Layer J72 thus should be primarily regarded as an integral part of the Acheulo-Yabrudian complex (bearing the Acheulean facies). Unit XIV was originally left aside the Acheulo-Yabrudian complex by Jelinek (1982a), however our current analysis shows it bears many similarities with the Acheulo-Yabrudian complex. This was also demonstrated by the excavations and analysis of the same layers by Ronen et al. (2011). The geological study as well (Tsatskin, 2000) shows this unit to be more similar to the sediments of the Acheulo-Yabrudian than to that of Layers F–G. Ronen's Layers R64 to R65 testify to a gradual transition from the Acheulean industry to the Acheulo-Yabrudian complex (Shifroni and Ronen, 2000; Gisis, 2008), with Layer R66 clearly being an Acheulean industry and Layer R63 an Acheulo-Yabrudian layer. Below Layer R66 Ronen identified an additional nine layers however these are characterized by a lower density of

Download English Version:

<https://daneshyari.com/en/article/1040921>

Download Persian Version:

<https://daneshyari.com/article/1040921>

[Daneshyari.com](https://daneshyari.com)