

Preface

The discovery of evidence for fire at Gesher Benot Ya'aqov was not part of our expectations from the outset; nor was the study of fire, its control and its cultural implications initially among the many and diverse goals of the project. The discovery illustrates the fascination and unpredictability of the archaeological discipline. The presence of fire at the site, and its occurrence in all of the prehistoric occupations revealed during seven field seasons, turned it into a major research objective. The results of this research are presented in this volume.

The origin of the research lies in the proximity of the Gesher Benot Ya'aqov Acheulian site to the Jordan River. This resource was exploited for the wet-sieving of all the sediments removed during excavation. The apparatus was constructed in such a way that the excavators could sit on small stools in the river and operate hanging sieves of 2 mm mesh, which were submerged in water. All sieved material larger than 2 mm was washed, dried, and later sorted. It was during this sorting process that the flint microartifacts that form the bulk of the database of this study were collected and later analyzed.

The small lithic component could not be identified during excavation, due to the water-logged nature of the sediments, the dark color of the deposit, and the necessity to shade the excavated surface from the sun and moisten it continuously to preserve the organic materials (wood, bark, fruits and seeds) embedded in it. Thus, the recovery of burned flint microartifacts during sieving in the field was accidental, and was later verified in the lab at Kibbutz Gadot, where the expedition was lodged throughout the field seasons. This fortuitous discovery led to a prolonged study of the evidence for fire in all of the archaeological horizons of the Gesher Benot Ya'aqov excavations.

The identification and sorting of microartifacts of all raw materials was carried out at the Institute of Archaeology of the Hebrew University of Jerusalem, a procedure that necessitated the involvement of many individuals. The sorting, which lasted from 1989 to 2007, was carried out by students; most of them had no previous experience in archaeology and came from different departments of the Faculty of Humanities, School of Law, School of Education and Faculty of Social Sciences.

The broken hearts and many other non-archaeological issues that were discussed while tweezers and brushes were operated could have been the subject of an extensive sociological study in themselves. We achieved the sorting of over half a million microartifacts, and the children of the first sorters will probably appear as students of the Hebrew University very shortly.

The order and magnitude of the task we planned made some of the funding agencies very skeptical about the feasibility of the proposed research. One perceived disadvantage was the lack of similar attempts, though they are widespread nowadays. Clearly, the task of sorting needed perseverance more than anything else. Important changes took place throughout the years of sorting and analysis. For example, the GIS and other program packages developed tremendously. The first attempts to explore the applicability of GIS programs to the distribution of microartifacts were rejected by experts, due to lack of experience in intra-site projects and the overwhelming size of the database.

We have carried out this task with a deep sense of duty and with constant curiosity and anticipation. Indeed, every archaeological excavation brings with it the obligations of recovering,

recording and preserving, which are all components of the attempt to reconstruct ancient cultures and past ways of life. At prehistoric archaeological sites, where we rarely encounter constructed features (not to mention monumental structures or historical records), we must endeavor to make the most of the data retrieved. Throughout the course of this study we were guided by the concept of *structures latentes*, first established by Leroi-Gourhan. This concept recognizes the fact that the archaeological record conceals information that is not visible at first sight, since it does not exhibit directly observable features. Accordingly, ancient fireplaces were embedded within the archaeological levels at GBY, though they lacked apparent color, constructed contour or clear accumulations of ashes and burned material. Their presence could be discerned only through careful examination of spatial patterns, particularly those of the small lithic items.

The use of the *structures latentes* concept at GBY enabled the remarkable discovery of Acheulian hearths. Moreover, the fact that such hearths are recorded throughout the long archaeological sequence suggests that fire was not only used but *controlled* by the Acheulian hominins of GBY as early as 0.79 million years ago. Conclusions like these, and their implications for the archaeological, anthropological and evolutionary sciences, illustrate the great potential of such studies. For us, despite the immense amount of time and resources required to accomplish the task, this long journey was truly worthwhile, as it enabled us to recognize an exceptionally significant aspect of the lives and behavior of the GBY hominins.

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Nira Alperson-Afil
Naama Goren-Inbar

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Alperson-Afil, N.; Goren-Inbar, N.

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