Lower Palaeolithic Small Tools in Europe and the Levant

Jan Michal Burdukiewicz and Avraham Ronen, Editors

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This edited volume includes papers presented at the exploratory workshop "Lower Paleolithic Small Tools in Europe and the Levant," in cooperation with the XIth Congress of the International Union of Prehistoric and Protohistoric Sciences (U.I.S.P.P.), Liège, Belgium, September 3–7, 2001. The contributions collectively highlight the temporal and morphological significance of Lower Paleolithic small tools, a component of some assemblages recognized since the 1960s. Small artifacts are often only marginally examined at most Lower Paleolithic sites, where greater emphasis is usually placed on the larger and more prominent tool types such as bifaces, choppers, heavy-duty scrapers, and so forth. This volume therefore, exemplifies, a significant change and hopefully will encourage archaeologists to focus on the equally important aspects of small tools. The volume title includes the phrase "Lower Paleolithic," but some discussions, perspectives, and terminology go beyond this time. The editors, for example, provide a broad age bracket of 1.0 myr to 300 kyr for "small tool assemblages," but the evidence discussed also includes later Middle Paleolithic assemblages. The unifying theme explored at the workshop, however, is the high degree of similarity of small artifacts from different regions.

Fifteen papers comprise the volume, including a discussion by the editors, and the papers are geographically and temporally arranged from west to east and from Lower to Middle Paleolithic, respectively. While the papers cover a large geographical expanse, there is a strong Central European bias in the volume's coverage—nine papers are devoted to that region. The Levant and Asia fare less well, with only two papers each (perhaps not surprising considering that Asia is not included in the book's title). In that respect, the volume would have been considerably enhanced and better balanced if papers were also solicited from investigators working in other important regions of Europe (e.g., Italy, Greece) and the Levant (e.g., Jordan).

In the first paper, Thieme presents results from work at Schöningen in Lower Saxony, Germany. Introductory background to the research is followed by a more in-depth description of key localities in the region, specifically Schöningen 13 I, 12, and 13 II-4. The relevance of small flakes and flake tools for hafting purposes is discussed, and, most importantly, the paper highlights the famous well-preserved spears.

Mania and Mania describe important research findings from Bilzingsleben, also in Germany. The authors provide a broad overview of the studies, including floral and some faunal evidence, fossil hominid material, brief descriptions of the stone, wood, and bone tools, dwelling structures, and bone engravings. Emphasis, however, is placed on the small tools, the primary theme of the edited volume.

Bruhl, in his paper, describes the flint small tool industry from Bilzingsleben-Steinrinne in detail. He stresses the frequencies of small tools and compares this assemblage with similar evidence from elsewhere in Europe. The relevance of artifact size is emphasized, and the author notes, from his research

in the Elbe-Saale region, that "all industries from the interglacial age are characterized by relatively small flint tools, whether or not the lithic assemblages of glacial age have toolkits with larger mean dimensions" (p. 52). Concluding, he further points out that "the existence of such an industry [of small tools] is a combination of cultural and functional peculiarities" (p. 53). A number of excellent lithic illustrations show the overall typomorphological homogeneity.

One of the editors of the book, Burdukiewicz, discusses evidence from Lower Paleolithic sites with small artifacts in Poland. He begins with a brief overview of past work and a description of Middle Pleistocene stratigraphy of Lower Silesia. This is an important paper regarding a little-known source of Lower Paleolithic data from this part of Europe. A good synthesis of paleoenvironmental information in the region is presented. The sites include Trzebnica 2 and Rusk Sites 33 and 42, which are compared using their respective spatial analyses. In parallel with some fellow contributors, Burdukiewicz attributes environment (woodland) to the role of onr factor determining the presence of small tools.

The next paper in the volume is dedicated to a recently studied Lower Paleolithic site in the Czech Republic. Fridrich and Sykorova briefly report the results of their first season of salvage operations at Račiněves. Using biostratigraphy, they interpret the site to be younger than 600 kyr. Related evidence includes hearths, fragmented faunal material, and a distinct stone tool industry in an intact context. Most of the cores and the platform preparation are compared to Middle Paleolithic techniques. The authors attribute the assemblage of 192 artifacts to a later phase of the Lower Paleolithic.

Dobosi presents data from the well-known non-Acheulian site of Vértesszőllős in Hungary. Although detailed archaeological investigations at the site have long ceased, this contribution represents one of the few sources for Hungarian Lower Paleolithic material. In addition to research background, stratigraphy, and faunal/floral evidence, Dobosi identifies the lithic assemblage as an "unchanged industry" in terms of artifact dimensions (length and width).

The second editor of the volume, Ronen, describes the small tools from Evron Quarry in Israel, an important Acheulian site in the Levant. This paper stands in contrast to many others in the edited volume, as most other sites described are non-Acheulian. Ronen discusses the site and its stratigraphy, chronology, fauna, and lithic assemblages. The small tools described by the author form a component of the Acheulian assemblage as a whole. Their presence may be a result of raw material exploitation (small nodules) or may simply represent debitage (as assumed at Isernia in Italy).

Another important site, somewhat comparable to Evron Quarry, is Bizat Ruhama, described by Zaidin. Here, the largest artifact in the assemblage is approximately 50 mm in length, while the average length is 25 mm. This (considerably) ancient site is briefly described, and its assemblage of approximately 1,200 artifacts is typified by the use of flint pebbles as the primary raw material. To explain the independent presence of small tools so far back in time, Zaidin explores the possibility of raw material constraints. In his conclusion, he states that "the type of raw material to a large extent determined the size of the artifacts" (p. 122), and "the small-size artifacts of Bizat Ruhama have cultural, as well as functional implications" (p. 123).

One of the oldest sources of Paleolithic evidence in Central Asia is from Kuldara, described by Ranov and Dodonov. They present the research background and then provide a detailed breakdown of tool types (their dimensions and descriptions). The assemblage is broadly compared with other similar evidence from the Old World, and the authors also discuss the definition of small tools regarding standardized size classes. They conclude by exploring three hypotheses or situations responsible for Middle Pleistocene

small tools—functional considerations, components of large tool assemblages, and a "microlithic complex" and its "movement through territories."

Although Keates's paper was a part of the workshop and offers an interesting perspective to the study of small tools, it deviates significantly from the geographic thrust of the volume. Her paper is devoted to understanding tool assemblage variability, from the perspective of raw material, in Paleolithic China. She provides explanations that consider additional factors such as activity facies, and she refers to both small and large tools. Her work focuses on localities such as Xioachangliang and Donggutuo, and describes information including raw material type, distance to raw material sources, and some experimental flintknapping results. She argues that the size of raw material nodules and clasts influenced tool size.

Regarding Central European microlithic assemblages, Moncel discusses the "Taubachian" group of small artifacts and similar material from the sites of Kulna, Prédmosti II, and Tata. The author describes associated technological behavior and mostly focuses on debitage and cores. Following the synthesis, Moncel also proposes environment and climate as factors for small artifact utilization.

Valoch also focuses on the "Taubachian" and describes a Middle Paleolithic small tool industry. The author refers to localities in the Czech Republic and Slovakia and explains the possibility of an "inner genetic link" between the microlithic industries. He further suggests that the interglacial climate of Central Europe was a factor responsible for the assemblages and associates the evidence with "mineral and thermal water springs" (p. 192). Simultaneously, however, he concedes that the use of small clasts was a major factor in the presence of small artifacts.

Wisniewski discusses the Middle Paleolithic microlithic assemblage from Wroclaw, one of the first sites of its kind in the Polish lowlands. In addition to exploring the geology, stratigraphy, and context, the author focuses on the morphology, technology, refitting studies, and spatial analyses of the assemblage. Wisniewski argues that the small dimensions are a result of technique rather than raw material properties. His illustrations of conjoined specimens with their respective sequences of flake removal are noteworthy.

Although Otte did not participate in the original workshop, his contribution discusses the archaeological significance of micro-industries during the Paleolithic. He points out that the phenomenon has a long temporal duration and spans a vast geographical domain. He aptly synthesizes the data from Europe and discusses problems of cultural terminology and typology of micro-industries. Some of his statements, however, are confusing, as he also uses the term "flake industries." Otte invokes factors such as style and function to explain small tool assemblages.

The last paper, contributed by the editors, is a synthesis and discussion of the theoretical aspects of the problem of interpreting Lower and Middle Paleolithic small tool assemblages. Although parts of this discussion may have been more suitable in the preface, Burdukiewicz and Ronen rightly stress the arbitrary significance of the size of small tools, as well as existing generic and descriptive terms for such assemblages. They differentiate between the assemblages discussed in the volume and typical microlithic assemblages known from the Mesolithic, yet suggest the existence of hafting during Lower Paleolithic times, a technique often ascribed to Mesolithic microliths. After touching on the frequency of specific tool types, they review a number of potential factors to explain the often-independent presence of small tool assemblages. Although a lack of conclusive interpretations is conspicuous in their synthesis, they do suggest a number of important future research directions to address some of the problems discussed.

Direct comparison of the contributions in this volume is difficult to achieve because the various authors have used differing data resolutions and perspectives to interpret small tools, likely due to the lack of an established typological framework for Lower Paleolithic small tools. Accordingly, the respective papers in the volume are mostly descriptive, and broad interpretations are certainly challenging to formulate. A myriad of integrated perspectives and salient factors have been offered by the various authors and these range from function, culture, environment, and technology to raw material constraints. It is evident that the phenomenon of small tools in Lower Paleolithic assemblages is highly complex and yet to be adequately explained. In any case, it is also apparent from the different localities discussed that there are three basic contexts in which small tools seem to occur during the Lower Paleolithic. These are (a) as a light-duty functional component of nonbiface (Mode 1) assemblages; (b) as a similar component of biface (Mode II) assemblages; and (c) as independent light-duty assemblages *without* a large tool component.

It is evident from the editors' synthesis that small tools do not appear to form recognizable industries or traditions with discernible geographic and temporal boundaries. Further, the types of sites mentioned in this volume are not abundant or consistent enough to warrant assigning cultural or generic labels to associated assemblages, regardless of how distinct they are from currently known assemblages. The low profile of small tool sites older than the Upper Pleistocene may reflect potential temporary solutions to discrete functional problems at hand rather than an extended trend through time and space. In other words, depending upon artifact densities, such sites may be regarded as Lower Paleolithic activity locations where opportunistic light-duty functions were performed. In my own work in the Siwalik region of northern India, for instance, nonstandardized or amorphous artifacts (debitage, irregular fragments, chunks, etc.) produced from river-worn quartzite cobbles are often found with varying degrees of usewear on their edges. This highlights the highly expedient components that can be manifested within many Lower Paleolithic assemblages.

From the evidence presented in this volume, many of the described and illustrated tool types are clearly distinguishable from conventional Middle and Upper Paleolithic flake tools. It should also be noted that the "microlithic" industries discussed are not, and should not be, confused with the geometric tool types from the Mesolithic. There is, however, a partial consensus that small tools represent hafted components (particularly in Germany)—thus eliminating the need for larger cutting tools. While evidence for hafting during the Lower Paleolithic is mentioned, consistent examples are lacking. Moreover, while hafting may have been a technique known during Lower Paleolithic times, it does not appear to have become a widespread technology until much later periods.

The editors place an emphasis on small tools in the preface of the volume, although the term itself is not defined at the outset with regard to dimensional limits of the artifact types. The editors' casual use of the term "small tools" to mention the Mode I assemblages of China and other parts of the Old World is confusing (e.g., "large tools" vs. "small tools"). In fact, it is unfortunate that the extensive discussions and debates (concerning the validity of the various regional terms) generated by the workshop (as mentioned in the preface) were not included in the editors' summary. As a result, readers have no knowledge of what transpired during those discussions and what issues and theories were resolved or introduced (if any). Be that as it may, a highly cautious approach is necessary, particularly as some areas are still in the process of adopting modern archaeological methodologies and interpretative approaches.

There are inevitable typographical errors, and several maps and lithic illustrations lack scales or appear to be computer-based drawings. These are minor flaws, however, and do not diminish the quality of an otherwise efficacious publication. From the contents of the volume, it is apparent that perhaps the boundary between Lower and Middle Paleolithic periods needs to be redefined in some subregions of the

Old World, where advanced techniques and a dominance of flake tools emerged earlier than generally perceived. More detailed qualitative lithic analyses are needed and correlations with such direct determinants as climatic condition, ecological variability, raw material proximity, site function, and so forth need to be established. From the variety of artifact types discussed, their contexts, and resulting explanations, it appears that multiple proxies are probably responsible for, at least, the independent assemblages of small tools in the Lower Paleolithic archaeological record. As long as environmental parameters were changing on a regional scale, associated technofunctional developments were inevitable and generally seem to have followed suit.