Discoid Lithic Technology:
Advances and Implications

Marco Peresani

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Review by Marie Soressi

Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

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This edited volume gathers together 15 papers dealing with the definition of discoid lithic technology, as published by E. Boëda in 1993, and its applicability to European Palaeolithic contexts in France, Spain Italy, and Central Europe. Two thirds of the book is actually dedicated to the evaluation of this definition. The last third provides discussions of the significance of the use of discoid technology by Paleolithic groups. Six papers are in English, while the others are written in French.

Here, I provide the reader first with brief summaries of the papers, and then I offer some personal comments. In my opinion, this volume illustrates some of the strengths of the western European school of lithic technology (especially its dynamism), as well as some of its weaknesses.

Summaries

The first paper in the volume is by V. Mourre, who was among the first (Mourre 1994), with other authors (Jaubert and Mourre 1996; Grimaldi 1998; Slimak 1998-99) and the editor himself (Peresani 1998), to document the variability of discoid production, and to demonstrate that there was a need to enlarge the original definition of the discoid method. This first paper is a good introduction because it offers a review of the history of the definition of discoid technology. At the same time, it also presents an in-depth discussion of the definition and its variants. Mourre examines the pertinence of the actual criteria of definition to reject some of them (e.g., the hierarchy of the surfaces, the inclination of the removals). He concludes with a new interpretative set of relationships between Levallois and discoid methods, as well as within each of those methods. The discoid *sensu stricto* (essentially the original definition by Boëda) would be integrated within the discoid *sensu lato* (in which the inclination of removals can be variable and the hierarchy between removals can also be more variable than in the original definition). Both of these would be integrated within centripetal debitage (with no specific configuration of the core).

Following this introductory paper, several papers illustrate the inadequacy of the actual definition of the discoid method in reflecting the diversity of discoid modalities observed within archaeological contexts. This is particularly true with Xavier Terradas' paper, which presents a precise synthesis of the variability observed in North-Eastern Spain.

L. Slimak also demonstrates the inadequacy of the definition with his study of two sites in the Loire Valley in France: Carrière Chaumette and Champ Grand. He argues for an extension of the discoid definition, suggesting that the criterion of the inclination of removals be deemphasized while the criterion of the absence of preparation of convexities be emphasized. In doing so, he highlights the difference between discoid debitage with a "continuous" rhythm (i.e., with no hierarchy in the debitage between preparation flakes and other flakes) and Levallois debitage with a "discontinuous" rhythm (i.e., in which

some flakes have primarily a preparation role). This last method (discontinuous rhythm) would have involved more anticipation to manage the entire volume of the core.

M. Vaquero and E. Carbonell show that the discoid method was used in the Iberian peninsula from the Lower Paleolithic (e.g., at Gran Dolina which is older than 780 ka bp) through the late Upper Paleolithic. Although the method used was similar, its behavioral meaning was different depending on the context. They agree that the distinction between flakes that are inclined and parallel relative to the plane of intersection of the two surfaces of the core is not a useful criterion to recognize discoid technology. They suggest that the emphasis should be placed on the predetermination of flake dimensions and shape (e.g., facetted buts), and on hierarchy between flakes.

To further develop the point made by Vaquero and Carbonell about the existence of discoid technology until recent periods (a point also mentioned by Mourre earlier in the volume), J.-P. Bracco and his colleagues provide details about the processes and the goals of the French and Spanish Magdalenian technologies, which resemble discoid technology. They demonstrate that this large array of methods had nothing to do with the Middle and Early Paleolithic discoid technology. The general morphology of the cores can be the same at the stage of abandonment, but the actual process of production of flakes on those cores is different from the one used in earlier periods of time.

Going back to the description of Mousterian discoid lithic technology, J. Baena Preysler and his colleagues criticize the criteria used in the original discoid definition, specifically by pointing out the difficulties involved in identification of discoid products in western Cantabrian assemblages (e.g., the pseudo-Levallois points). Within the following paper, M. Lopez Recio and J. Baena Preysler show the continuity between discoid and Levallois lithic technologies—according to the classic definition—in the Spanish Meseta, probably in relation to the raw material (mainly quartzite) used in those areas.

L. Bourguignon and A. Turq provide us with a precise description of a discoid variant made on flakes and oriented toward the production of points. This description is based on their technological analyses of two French assemblages (Champ Bossuet and Combe-Grenal Couche 14), on refitting of the archaeological material at Champ Bossuet, as well as on experimental data. They suggest a modification of the original definition of the discoid method in order to integrate these new finds.

The rigorous study of M. Brenet and M. Folgado of Les Forets in the Dordogne area, a site dated to OIS 5 by thermoluminescence, offers another example of a discoid production permitting extensive economy of raw material. The authors show that at Les Forêts, the centripetal and unipolar core reduction methods correspond to situational technical solutions which belong to a single and unique conception of economic discoid flaking.

J.-F. Pasty illustrates the variability of discoid technology and the need to expand the original definition, using the results of his study of four open-air sites in the Auvergne area in France. He presents a comprehensive list of the distinct discoid modalities recognized there.

J.-L. Locht provides an excellent demonstration, based on archaeological refitting, of one variant of the discoid method recognized at Beauvais in France.

M. Peresani, the editor of the volume, examines 13 sites in central-northern Italy, dated from the mid- to late Pleistocene, in which discoid technology was used. This synthesis does not find any relationship

between the use of discoid lithic technology and the typology of retouched tools, nor any relationship with raw material availability, the setting of the sites in open-air or in caves, or with the ungulates species represented at the sites.

M.-H. Moncel focuses on three famous eastern sites, two from the Czech Republic (Külna and Predmosti II) and one from Hungary (Tata), each dated to OIS 5. She documents the production of Taubachian microliths using a discoid technology. Interestingly, this ancient microlithic production would not have been influenced by raw material availability.

The volume concludes with two papers that offer an integrated approach to discoid technology, from production to usage, through complementing the technological analyses by micro-wear analyses. K. Martinez and his colleagues, as well as C. Lemorini and her colleagues, show how flexible and how versatile the use of discoid tools could have been. At the Abri Romani in Spain, studied by Martinez and colleagues, the entire process of production and use is certainly versatile and expedient. At the Italian site of Fumane, Lemorini and colleagues demonstrate that the discoid tools were "ad hoc" tools, immediately functional for a variety of tasks.

Discussion

Drawings and illustrations are numerous and of very good quality (including photos of micro-wear polishes). Nonetheless, the volume in general suffers from a large number of typographical errors, as well as from layout mistakes. These are the results, according to the editor, of several misunderstandings with the publisher, and an erratum should be forthcoming. Yet these typographical/layout errors should not prevent the reader, and especially the English-speaking reader, from deriving great benefit from this volume.

Many of the results presented have not been published elsewhere, and constitute original and unique contributions. The editor of this volume should be commended for having put together a volume providing new and up-to-date documentation about discoid lithic technology, with good illustrations and substantial papers.

As stated by the editor in the preface, it is good that this volume brings together scholars with a diversity of approaches. Considering that, it is interesting to notice how French scholars generally argue in the volume for an extension of the discoid definition, whereas the Spanish researchers are more inclined to create intermediaries between Levallois and discoid categories. This may be a reflection of differences between French and Spanish schools, the former being dominated by Bordes' typology in which criteria are hierarchical (and part of the variability was masked to ensure the elucidation of variability deemed important to the analyst). The latter, Spain, is dominated by Laplacian typology designed to take into account as much variability as possible, with the creation of as many intermediary classes as necessary.

Fortunately, this book is proof of the interest of scholars in defining a discoid lithic, not only from the analyses of cores, but also from the analyses of flakes, which are two facets of the same coin. Still, every author acknowledges that it is not possible to attribute each artifact individually to one or the other technology.

After recognizing the utility of the discoid concept, and emphasizing the need for a workable definition, it would have been logical to provide a synthesis at the conclusion of this volume. However, it should be noted that it would not actually have been easy to reach a consensus among the conclusions of the

various papers; most of the authors defer on the criteria which should be used, and disagree on the limits for the definition of discoid lithic technology. For example, Slimak's definition includes not only centripetal debitage, but also some unipolar debitage. On the contrary, discoid technology is only one variant of centripetal debitage for Mourre.

This situation probably originates in the fact that this book is the first comprehensive reflection on the adequacy of the discoid technology definition, and as such, was a necessary first step. Additionally, there may also be structural reasons. For example, it might be easier to achieve a consensus on the definition if, before establishing this consensus, there is already an agreement on the purpose of the definition. This situation is not surprising, as E. Boëda himself was not explicit about why he choose his six criteria to define discoid cores, and by extension, discoid technology. From my point of view, the definition of a method of production should be designed to adequately highlight the knowledge involved in the manufacture of stone tools and the transmission of this knowledge from one generation to another (i.e., the technical tradition in which those tools were produced), as well as the needs in which this particular production originates.

As a consequence, the definition of a method of producing stone tools should be based, at a minimum, on the organization of removals during the manufacturing process, and the morphology of the products, assuming that this morphology would have a strong influence on how the products can be used, and the need for which they have been produced.

I believe that this is not a new approach, and these criteria—even if they have never been specifically explicated—are actually the ones that were the premise of Boëda's thoughts when he introduced the new Levallois and discoid definitions. The criteria he used are actually designed to reflect the organization of removals on the cores, and as a consequence, to better understand the morphology of the products obtained. With this in mind, I would be more likely to use Mourre's definition, for example, than Slimak's, because I would choose a definition of the discoid method which is able to highlight the difference between the discoid and the Levallois products as far as it is possible. I suspect that centripetal production would yield products significantly shorter than a unipolar production for a given size of raw material block. Of course, this methodology is difficult to apply, as we still do not have a clear idea of which and how morphological criteria (weight, shape, edge angle, etc.) constrain the functional potential of a stone tool.

Overall, this volume illustrates the dynamism of this group of researchers. They have been able, from new first-hand analyses, to criticize concepts established only 10 years ago by scholars from the same school. This up-to-date discussion of discoid technology will be of interest for students as well as for researchers. It provides the material needed to quickly publish a new synthetic definition of the discoid technology; let us hope this will be done soon.

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