The Interpretative Possibilities of Microwear Studies

Proceedings of the International Conference on lithic use-wear analysis, 15 — 17 February 1989 in Uppsala, Sweden, AUN 14, Societas Archaeologica Upsaliensis, Uppsala, 1990, 184 p., 99 figs., 10 tables.

The modern study of Stone Age implements follows a three-part framework : technology, typology and function. After the middle of this century, new theory building gave rise to more concrete research efforts. As a result of the development of experimental archaeology applied to stone tools, used in strict controlled situations, it became possible to create analytical methods able to offer data concerning the function of prehistoric artifacts. The main focus of this research was lithic use-wear analysis, which is the study of microscopic traces or marks developed on a tool during use (B. Gräslund, *Preface*, p. 5).

The theme of the seventh international conference on microwear studies, held at Uppsala University in February, 1989, is a response to the need to turn to more explicit problems of the cultural interpretation of this type of data. The participants were well-known specialists, as well as young researchers from ten countries : U.S.A., U.S.S.R., Sweden, Spain, Great Britain, France, Holland, Belgium, Poland, and Canada. The volume, edited by B. Gräslund, H. Knutsson, K. Knutsson, and J. Taffinder, contains most of the papers that were presented at the conference, as well as some which had been announced, but could not be presented.

This volume has three parts ; the first deals with *Cultural Interpretation of Microwear Data : Theoretical Considerations* (four papers, p. 9—50). R. Grace pointed out the limitations and applications of use-wear analysis (UWA), indication that different levels of analysis can be used in different research situations based on variations in tool raw materials, post-depositional alterations, and the unknown extent of low use rates. He went on to site examples from various UWA : Mousterian quartzite artifacts from Portugal ; flint burial assemblages from Bronze Age Ithlingborough Barrow, England and microborers from Kumartepe, Turkey. From these examples, he has demonstrated that microwear analysis can be successfully applied. To be meaningful, micro-wear analysis must form an integrated part of the general framework of a reaserch strategy. In his paper, K. Knutsson demonstrates from the quartz assemblages at Bjurselet in Sweden, that the correlation of microwear data to the archaeological context enables us to generate relevant thoughts about past events, creating a new and unique lithic scene provided by microwear analysis. A. Ramos Millan's paper entitled *Use-Wear Analysis and Archaeological Theory : A Restatement of Current Problems*, examines the two most outstanding problems encountered in UWA : the slight precision of tool-use inferences and the ever pending integration of use-wear behavior in the culture. He proposes that analyses be developed with the exclusive aim of reconstructing specific components of past ethnographic contexts. *The Meaning of Microwear Data* is the subject of K. Torsberg's paper which states that the interpretations made from microwear data are limited by the method and theoretical development. He suggests one means of making progress is to combine microwear data with other types of archaeological data.

The second part of the volume pertains to the *Cultural Interpretations of Microwear Data — Case Studies* (twelve papers, p. 53—176). Microwear data offer considerable potential for the discovery and analysis of lithics. Using craft specialties of the Lowland Maya, M. S. Aldenderfer explores new ideas concerning how to accomplish the integration of largely empirical data derived from microwear analysis of Mayan general utility bifaces, drills, and ad hoc tools with theoretical concepts (i.e. craft specialization, production of conunodities, and toolkits). S. Beyries studies the problems of interpreting functional analysis of tools from the Early and Middle Paleolithic. For the first epoch, the number of tools on which wear has been identified is very small, due to post-depositional alterations that seriously affect older assemblages (materials from Ethiopian Hadar). For the Middle Paleolithic, it has been possible to identify only the worked material ; the divergent results obtained are a consequence of differential preservation in open air sites (N France) and cave sites (SW France). A. van Gijn made an attempt to use microwear data to study the degree of permanency of Late Neolithic settlements in the Dutch Coastal area (Vlaardingen group). The author demonstrates a considerable resemblance in tool usage behavior between the two sites discussed. In particular, contextual information (i.e. raw material use, economizing behavior, and find distributions) shows that there are two different types of site exploitation, sedentary and occasional. A very interesting paper was presented by B. Hayden referring to hide working in high ranking households. The hide-scrapers collected in archaeological sites from British Columbia have been analyzed using ethnographic observations among hunter/gatherer communities from the beginning of the 20th century in that region. Morphologically specialized hide-working tools are related to the production and use of large quantities of hides of a high quality that are viewed as status display items. The author underlines this aspect as an economic difference between the Middle and Upper Paleolithic, which explains, many of the technological differences that characterize the two periods. G. Kazarjan offers *An Ethnocultural Interpretation of Mousterian Tool Functions*, based on the analysis of obsidian artifacts discovered in sites in the Caucasus Mountains. They indicate the probable existence of traditional technological stereotypes, or different modes of woodworking with ethnocultural specialization. *Projectile Damage on Upper Paleolithic Microliths and the Use of the Bow and Arrow Among Pleistocene Hunters in the Ukraine* is the subject of D. Nuzhnyi's paper. Typical damage of the microliths indicates two major methods of their usage as projectile points : (1) as auxiliary elements inserted into lateral composite edges of the foreshafts ; and (2) as proper piercing points. Using the parable *Brer Rabbit Seeks True Knowledge*, G. H. Odell discusses the relevance of functional analysis through two examples from the Illinois Valley, U.S.A. The first is a comparison of worked materials from two Archaic components, the lower and upper components of the Campbell Hollow site, and the second is a long-term diachronic perspective on one functional activity. The paper by M. Otte, J. Pelegrin, and E. Collin, *Towards an Integrated Approach : The Use of the Cananean Blades*, proposes that Cananean blades, which are long, thick, hafted, flint pieces from the Neolithic, were used exclusively to cut cereals, and a simple blade was used as a

sickle. A. K. Sievert's analysis of chipped stone artifacts (chert and obsidian bifacial pieces) from the sacred cenote at the Mayan site of Chichén Itzá, Mexico provides a referential set of functional traces on tools from an unique ritual context. M. Winiarska-Kabacinska pointed out that the main difficulties of functional analysis of flint tools from the Late Pleistocene Polish Lowland sites (especially Wojnowo) are due to chemical and mechanical transformations connected with aeolian and fluvial processes. P. Volkov shows that some unusual artifacts, "eared axes" discovered in Mesolithic sites from Northern Asia, were determined by UWA to be ice picks and testify to the practice of winter ice fishing. R. W. Yerkes attempted to determine if craft production could be distinguished from domestic activities in the large Ohio Hopewell earthwork complexes that served as production and distribution centers for the ceremonial goods. The microwear analyses of the lithic assemblage of the Murphy site, Licking County, Ohio, indicate that it represents a domestic settlement seasonally occupied by a small group of people in the last century B.C. — 2nd century A.D.

The final part, *Methodological Aspects of Microwear Analysis* (p. 179—184), contains just one paper, dealing with the effects of cleaning flint tools in preparation for microscopic examination, using variable HCl and NaOH treatments. The author, T. Rodon Borras, also gives helpful and practical recommendations for cleaning procedures.

In this detailed study of microwear analysis, rich and diverse information was systematically presented and was accompanied by a large quantity of illustrations and exhaustive literature. Analysis of the theoretical background of the cultural interpretation and of the limitations and applications of microwear was approached by means of numerous case studies. Many of the papers included in the proceedings of the international conference held at Uppsala establish the importance of research of the functional aspects of Stone Age assemblages. As R. Grace writes, "Use-wear analysis is a new and developing technique that can provide unique information about the past, as long as its limitations are appreciated and understood"(p. 14). Finally, this volume serves as a reference point, a model, and a stimulus for further research in the field of microwear analysis.

Corneliu Beldiman

L'art des objets au Paléolithique. Colloque international Foix/le Mas d'Azil, 16 — 21 novembre 1987, sous la direction de J. Clottes, Collection des Actes des Colloques de la Direction de Patrimoine, n° 8, Paris, 1990 ; tome I : *L'art mobilier et son contexte*, 295 p., 169 figures, 13 tableaux ; tome II : *Les voies de la recherche*, 284 p., 142 figures, 18 tableaux.

L'art mobilier a occupé une place spéciale dans la vie courante et dans les activités culturelles de l'homme au Paléolithique supérieur. Utilisant comme supports les matières dures animales (os, bois de cervidés, ivoire, coquillages) ou minéraux (plaquettes, galets) présentant des formes de manifestation extrêmement diverses, depuis simples hachures sur outils ou des armes jusqu'à des décors naturalistes d'un niveau artistique exceptionnel ou même chef-d'œuvres (voir les petites statuettes du type Vénus comme celles de Lespugue ou de Brassempouy) l'art des objets n'a pas été abordé jusqu'ici qu'incidemment dans les grandes réunions scientifiques sur l'art préhistorique en annexe à l'art pariétal. La nécessité d'un débat detaillé de la problématique assez complèxe concernant ce domaine, indépendamment de l'art des cavernes justifie l'organisation en première, dans l'année 1987, à Foix et Mas d'Azil, sous le patronnage du Ministère français de la Culture et de la Communication, d'un colloque international auquel a participé la quasi-totalité des spécialistes ayant préoccupations dans ce domaine et qui travaillent en huit pays ouest-et central-européennes, C.E.S., Etats-Unis, Japon, Nouvelle-Zélande.

Les Actes, édités en deux volumes sous la direction de J. Clottes, sécretaire du colloque, concrétisent les acquis du cette remarquable réunion scientifique et ont le point de la question sur une recherche en plein développment (J. Clottes, Avant-propos, p. 3—4).

Le premier volume, dedié à *L'art mobilier et son contexte* réunit 21 études en trois thèmes ; le premier (p. 9—153) commence avec l'article de H. Delporte concernant les différentes phases de la découverte et de la connaissance de l'art mobilier paléolithique en Europe et Asie « depuis les environs du milieu du XIXe siècle jusqu'à l'établissement du principat de l'abbé Breuil ». Une série de dix études examinent en détail en contexte régional l'important problème de la chronologie relative/absolute, les catégories et les thèmes des découvertes provenant d'un milieu archéologique stratigrafié ou assez précis : dans les Pyrénées septentrionales (D. Sacchi) en Quercy (M. Lorblanchet et A.-C. Welté) en Gironde, Périgord et Charente (J. -M. Bouvier) en Poitou (A. Chollet et J. Airvaux) dans la région rhodanienne — le Midi de la France (J. Combier) sur la côte cantabrique (P. Utrilla) dans l'Espagne méditerranéenne (J. Aparicio Pérez) en Italie (P. Leonardi) en Europe Centrale (B. Klima) et en Sibérie (Z.-A. Abramova).

Les cinq articles du deuxième thème (p. 156—243) regardent les relations thématiques/stylistiques et chronologiques entre l'art mobilier et l'art pariétal dans l'aire franco-cantabrique. L'association de ces manifestations artistiques sur les mêmes sites se constate surtout ici, mais à des degrés très variables ; sur ce point de vue, plusieurs sites occupent un lieu privilégié et offrent la possibilité de faire comparaisons des représentations pariétales et celles sur les plaquettes gravées et sur supports osseux d'époque aurignacienne, périgordienne et magdalénienne (les gravures du Volp — R. Bégouën et J. Clottes ; la grotte de Labastide — G., L. et R. Simonnet ; les sites de Périgord et de Gironde — A. Roussot ; la région cantabrique — A. Moure Romanillo ; dans les Asturies — J. Fortea, M. -S. Corchón et alii).

Le dernier thème (p. 249—293) contient cinq études sur des aspects thématiques et régionaux de l'art mobilier en France et Espagne. Jusqu'à présent, l'art paléolithique mobilier a livré moins répresentations d'insectes, la plus célèbre et la plus nette étant la sautelle d'Enlène, pour laquelle P. G. Bahn et R. Butlin proposent une nouvelle intégration à la famille d'orthoptères. Les plaquettes gravées, catégorie de pièces très fréquente dans l'art mobilier constituent l'objet de quatres articles signés par Y. Bourdelle et J. Cl. Merlet (découvertes d'Eval, Puy — de — Dome) J.-G. Rozoy (Roc—la — Tour I) J. — M. Fullola et alii (Sant Gregori, Catalogne) S. Ripoll López et C. Cacbo Quesada (l'Espagne méditerranéenne) ; elles enrichissent le répertoire des découvertes et l'iconographie de l'âge magdalénien.

Très consistant, le premier thème (p. 7—202) du second volume, *Les voies de la recherche*, 23 études, traite sur le contenu et la signification de l'art des objets. A. Sievekings'occupe de plaquettes et leur rôle ; les résultats de l'analyse informatique sur 1550 pièces découvertes en 140 sites dans l'aire franco-cantabrique, surtout au Magdalénien moyen et tardif sont de trois ordres : supports — la majorité en pierre ; les techniques de décoration — gravure et bas-relief ; les éléments du décor — naturalistes ou schématiques. Ces pièces ont été utilisées probablement dans le cadre des rituels. Y. Taborin analyse le décor des objets de parure (dents d'animaux, coquillages, perles et pendeloques façonnés en os, ivoire ou pierre) qui présentent des thèmes naturalistes (divers animaux et l'homme) schématiques et abstraits (points, traces linéaires, incisions). Le décor des objets utilitaires du Paléolithique supérieur de la France — lampes et godets, pièces à anneaux, outils et galets utilisés (pierre) ; propulseurs, bâtons percés, spatules, lissoirs, baguettes, navettes, aiguilles, boucles (os et bois de cervidés) constituent le sujet de l'étude de B. et G. Delluc. L. Mons examine les figures animales incomplètes,