

TL Dating of the Magdalenian Sites at Orp, Belgium

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Magdalenian at Orp

The open air Magdalenian sites at Orp have been excavated by the 'Laboratorium voor Prehistorie, Katholieke Universiteit Leuven, in August-November 1979. The archaeological material and the final excavation report were published by P. M. Vermeersch, N. Symens, P. Vynckier, G. Gijssels and R. Lauwers (1987: 5-56). Two different occupation sectors could be studied : Orp east and Orp west, of which the centres are 9 m apart from each other.

The sites are located on an edge of the Brabant loess plateau, north of the 'Ruisseau de Jauche', a small tributary of the Gete river in the Scheldt basin. The archaeological remains were imbedded in the clay-enriched illuvial horizon of a Holocene gray brown podsollic soil developed on Weichselian loess. The stratigraphic position of the archaeological remains in Orp east was somewhat different from that at Orp west. While the artifacts at Orp east displayed a vertical distribution of not more than 0.20 m, corresponding to the dimensions of the largest artifacts, the vertical dispersion at Orp west was clearly more important being up to 0.40 m. During the excavations and the subsequent analyses, it has been observed that Orp west was much more affected by cryoturbation than Orp east. At the latter locality, however, cryoturbation was nevertheless important enough to move many artifacts to an upright position and to induce horizontal displacements of 0.20 m, whereas they could attain 0.60 m at Orp west. From these field observations it was concluded that Orp west was older than Orp east.

Taking in account technological and typological comparisons, it has been suggested that the Orp sites were broadly contemporaneous

with the Magdalenian site at Kanne (Vermeersch, Lauwers, Van Peer, 1985). At Kanne, some mineralogical and sedimentological arguments point to an age clearly anterior to the Alleröd, but probably still within the Tardiglacial, for the Magdalenian occupation. On typological grounds we suggested a similarity and contemporaneity with the U5 unit of Etiolles.

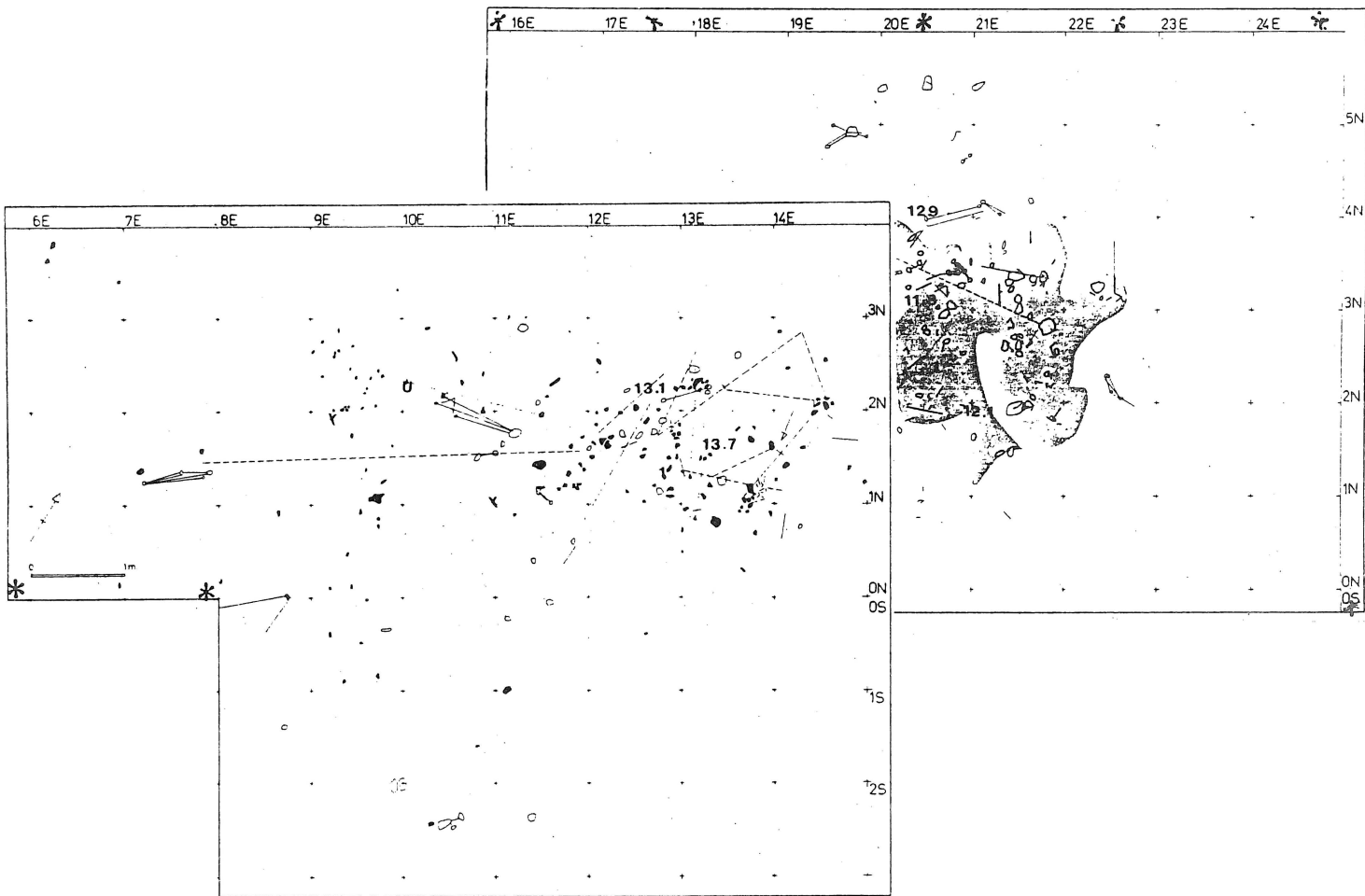
TL-dating

Thanks to the kindness of Dr. M.J. Aitken and Dr. J. Huxtable from the Research Laboratory for Archaeology and the History of Art, Oxford University, we now dispose of new dating elements by TL (1). The samples which are dated have been plotted on the site plan (fig. 1) and have following origin:

Excavation nr	square	soil	depth below horizon present surf.
Orp west site			
Op 1145/79	13E 2N	B ₂ t	20 - 30 cm
Op 1164/26	12E 1N	B ₂ t	± 25 cm
Orp east site			
Op 1221/48	20E 4N	B ₂ t	± 35 cm
Op 133/79	20E 1N	B ₂ t	20 - 30 cm

(1) We acknowledge with thanks the possibility they offered us to submit some samples for TL dating.

Op 1185/29 20E 3N B_{2t} 25 - 35 cm



In accordance with the B_{2t} soil horizon development, we estimate that before modern agricultural activities, the original surface was about 0.40 to 0.60 m higher than the present one. The loess deposits at the site are at least 2 m thick. All the samples consist of burnt flints. On April 29th, 1987, fluorite capsules have been buried on 9 different localities of the site (fig. 2). They have been retrieved on April 27th, 1988.

Op 1221/48	OxTL245b1	12.9 ± 1.5 ka
Op 1133/79	OxTL245b2	12.1 ± 1.3 ka
Op 1185/29	OxTL245b4	11.8 ± 1.2 ka

The error limit quoted is the total error at the 68 % confidence level. For the two sites a weighted mean has been calculated (Geyh, Schleicher 1990: 16) giving following results :

Orp west site : 13.3 ± 1.1 ka

Orp east site : 12.2 ± 0.8 ka.

Excavation nr Lab. ref. Dates

Orp west site

Op 1145/79 OxTL245a3 13.7 ± 1.7 ka

Op 1164/26 OxTL245a5 13.1 ± 1.4 ka

Orp east site

Comments

This dates can be compared with other TL-dates from Magdalenian sites in the Paris Basin (Olive 1988: 18) which are the following:

Marsangy H17 : 11.7 ± 0.7 ka

Verberie : 13.3 ± 0.85 ka

Pincevent IV2 : 13.6 ± 0.8 ka

Pincevent IV4 : 13.8 ± 0.6 ka

Etiolles P15 : 15.2 ± 1.0 ka.

Taking in account that the Marsangy site is already posterior to the Late Magdalenian, the Orp sites can be placed at the end of the Late Magdalenian sequence as established in the Paris Basin. It is unfortunate that, for the present moment, no TL dates are available for the Belgian cave sites, which, on typological and technological grounds, are considered to be more recent than the Belgian open air sites. However, these cave sites have ^{14}C -dates which are broadly contemporaneous with the open air sites of the Paris Basin and Gönnersdorf in the Neuwied Basin (Otte 1989). This should imply that Orp is contemporaneous with the Belgian cave sites. Future research has to check this possibility.

As it is difficult to calibrate TL-dates with ^{14}C -dates and as the biostratigraphical zones of the Tardiglacial have been dated by ^{14}C only, we should not try to correlate our Orp sites with one

of these zones. However, it can be accepted that the TL-dates are not in contradiction with the results of the mineralogically and sedimentologically based chronostratigraphical attribution.

According to Olive (1988: 16-17) the U5 unit of Etiolles, which is similar to the Orp sites, is contemporaneous with unit P15 which has been TL-dated at 15.2 ± 1.0 ka. Either the connection between Orp and Etiolles U5 cannot be accepted or the TL-dates of one or both sites are erroneous.

Bibliography

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