

SUMMARY: HEARTH OR »HEATING STOVE«?

The present study concerns methods of analysing the construction and function as well as the operating and utilizing mode of hearths in the late Magdalenian. The results of the analysis have produced important information on the behavioural patterns, the way of thinking and basic rules of late Upper Palaeolithic hunters and gatherers. The study is restricted to the later stage of the Magdalenian for the following reasons:

1. During this phase a typical, archaeologically verifiable, behavioural repertoire evolved, reflected in material culture and social networks stretching over extensive geographical regions.
2. Many hearths, in part excellently preserved and archaeologically well-documented, have survived from the late Magdalenian, providing the best preconditions for a detailed analysis.
3. State of the art publications offer the possibility to make a comparison between large numbers of hearths from various sites in different regions.

The methodological approach applied here is based on an appraisal of morphological and metrical data of the hearths themselves, combined with a reconstruction of activities in the immediate area around the fire. Integral components of the analyses are statistical techniques and spatial studies. The research was supplemented by experimental studies and the evaluation of ethnographical sources on the use of fire.

131 hearths from 15 sites were included in the morphometrical and activity-specific analysis: Andernach-Martinsberg/D, Gönnersdorf/D, Nebra/D, Oelknitz/D, Orp-Ost/B, Champréveyres/CH, Monruz/CH, Moosbühl/CH, Étioilles/F, La Haye aux Mureaux/F, Les Tarterets/F, Marolles-sur-Seine »Le Grand Canton«/F, Marsangy/F, Pincevent/F and Verberie/F.

The relationship or correlation between different morphological variables provide evidence of the relative length of use of the hearths and, in combination with activity-specific analyses, convey important information on behavioural and socio-economical aspects in the late Magdalenian.

The reconstruction of »primary« hearth structures has shown that the construction and number of hearths, as well as the type of activities practised, correlate to one another.

Distinctions are reflected, on the one hand, by the length of time the individual hearths were used but also, on the other hand, by a different significance of the fire, spatial behaviour and social aspects of life in the late Upper Palaeolithic.

Not only does the hearth itself change with increasing use – for example the overall extent of the feature and the number of construction stones rise tendentially – but also the type and diversity of the activities in the immediate vicinity alters.

Apparently activity-related behavioural patterns existed in the late Magdalenian which were equally pronounced in different areas of the settlement. The consistently detectable sequence of activities indicates »sequential« behaviour and basic rules in the context of fire use. In the foreground were life essentials, represented firstly by the construction and lighting of a fire, the preparation of nourishment and, secondly, repairing and producing weapons for hunting.

These activities are demonstrable for the majority of the hearths, independent of their construction and length of use.

Preparing furs or raw hides is a third activity which has been regularly observed. The further processing of furs and/or raw hides (sewing), along with the production of jewellery, appear to have played a particular role in the late Magdalenian, which went beyond that of simple handcraft.

In comparison with other activities sewing and, in particular, jewellery-making occur less frequently. These jobs are associated with special hearths which were used long-term, where apparently several people stayed

and which exhibit characteristics of a »domestic oven«. Sewing and jewellery-making were of great importance in the life of the late Upper Palaeolithic hunters and gatherers since their end-products, garments and personal adornment, had important symbolic functions and reflected socio-cultural aspects such as identity formation and affiliation to a group. The deviation of these jobs from activities necessary for survival is clearly marked by their association with selected hearths or ovens. These associations also reflect the differing significance of the fires. Alongside those which fulfilled purely technical purposes and where fire served primarily as a tool, are structures which in addition have a certain symbolic function. These hearths had become institutionalized; they were located at set places and formed the epicentre of social life. Personal adornment and garments were probably produced within the family circle.

Thus, conclusions can be drawn from the type and variety of activities associated with hearths which concern not only the relative length of use of the feature, but also its social function. In addition, the presence of finds indicating sewing and jewellery-making provide evidence of the overall character of the site; both jobs point to places where people lived and where families resided.

In addition, the analyses have shown that in the late Magdalenian different types of hearths or hearth constructions were employed. The spectrum ranges from simple hearths without any constructional elements, more or less level with the floor, which were lit and used on the bare ground, to those enclosed by stones, and to hearths which were partially or completely covered with stones. The latter dominate by far and can be classed as the hearth construction characteristic of the Magdalenian. Stones played a crucial role in the late Magdalenian use of fire as hearth architecture as well as functional elements which served as indirect conductors of heat.

The construction of hearths which were completely surrounded or partially covered by stones had immediate influence on the mode of operation. The modus of closed or partially closed combustion was wide-spread, particularly in the Alpine region and in the north-eastern settlement areas of the Neuwied and Thuringia Basins. The special »oven« constructions were designed to compensate for a shortage of firewood and to ensure a firewood-efficient, optimal use of thermal energy. The use of fire in the late Magdalenian was adapted to a high degree to climatic conditions and the limited availability of firewood during the Pleniglacial and Late Glacial. According to ¹⁴C-dates, the transition from mainly closed to primarily open types of combustion, which dominate in the Paris Basin, mark the temporally identifiable shift between GS 2a and GI 1, which was accompanied by gradual climatic improvement and a corresponding increase in the availability of firewood.

The results of this study show the potential of a combination of morphometrical and activity-specific studies for the analysis of hearths and their immediate context. Thus it was possible to not only reconstruct the function and mode of use of hearths in the late Magdalenian, but also to establish a connection between construction and length of use of a hearth and the activities carried out there. This provides a substantial methodological basis, upon which future studies can orientate and build upon.