

## 20. ENGLISH SUMMARY

### E18 BOMMESTAD–SKY

*Steinar Solheim and Hege Damlien*

#### INTRODUCTION

The E18 project is a cultural heritage management excavation project initiated by The Norwegian Public Road Administration's construction of a new highway from Bommestad to Sky in Vestfold county, south-eastern Norway (chapter 1).

The project is organised by the Museum of Cultural History, University of Oslo. Two field seasons have been carried out, and a total of nine Middle Mesolithic (8300–6300 cal. BC) sites have been excavated.

The project has been organised with a project staff of five archaeologists working in the project for three years (chapter 1 and 2). Hege Damlien and Steinar Solheim have been in charge of the project. In total, 28 field archaeologists have been employed during the two field seasons. A project council consisting of four members have been appointed by the Museum of Cultural History's director for quality insurance of the project's administrative, economic, and archaeological operations and results. Representatives from the Directorate for Cultural Heritage and Vestfold County Council have functioned as observers.

#### AIMS

Since 2000, the Museum of Cultural History has carried out several large-scale excavation projects in the Oslofjord region. Sites dating from the very first occupation of the region throughout the Mesolithic and into the Neolithic have been investigated (c. 9000–2400 cal. BC).

Earlier projects have mainly excavated Early and Late Mesolithic coastal settlement. Very few coastal sites dated to the Middle Mesolithic period (8250–6350 cal. BC) have been investigated in Eastern Norway, making it the least known phase of the region's Stone Age (chapter 3). In addition, as a consequence of Holocene transgressions only a few well-preserved sites dated to the period have been investigated in Southern Norway in general. The sites excavated by E18 Bommestad–Sky were thus expected to provide empirical data of high scientific value in a regional as well as national perspective. As all the sites could be shoreline dated to the first half of the Middle Mesolithic period, the Museum of

Cultural History pointed out the following aims as important for the project to clarify (Glørstad 2011). The project should:

- Identify and analyse technological, typological, and chronological variations in the artefact assemblages. This also includes variations in raw materials.
- Identify and analyse site organisation by studying find distribution and structures such as hearths, cooking pits and dwellings.
- Discuss changes from mobile to more stable settlement patterns in light of the excavation results.
- Prepare empirical data for future research and large-scale analysis of the cultural history of the Oslofjord region.

#### SITES AND SETTLEMENT

Nine sites, all dated to the Middle Mesolithic period (8300–6300 cal. BC), have been excavated. The sites have produced empirical data and results that will be of interest in an international perspective (compare for example Sørensen et al. 2013). The sites are well preserved, as few modern disturbances (e.g. farming) have been identified at the sites. Due to the region's acidic soil, the find assemblages consist of lithic material but no organic remains.

The glacio-isostatic rebound in the Oslofjord region has led to permanent land uplift since the last Ice Age. Due to the geological situation, all Mesolithic and Neolithic sites have been situated on dry land from their time of use until today. In principal, the higher a site is situated above the present shoreline, the older the site is. Shoreline displacement curves and reconstructions of ancient shorelines are thus excellent tools for dating Stone Age sites and for outlining chronological site sequences. A situation like this is rather unique on a global scale as it allows studies of coastal settlement in a long time perspective.

The excavated sites can be dated between c. 8000–7400 cal. BC by shoreline dating and/or radiocarbon dating. The sites cover most of the first half of the Middle Mesolithic period. The narrow time frame within which the sites are dated provides a good opportunity to compare different societal and

material aspects within what can be considered an archaeologically contemporary time period.

In general, there are strong similarities in the archaeological assemblages found at the sites. Regarding the site's layout and organisation, important variations can however be seen. Of importance is the discovery of a dwelling structure at the site Hovland 3 (chapter 15). A 35-cm thick lens consisting of a matrix of sand, charcoal, burned hazel nutshells, and lithic materials is interpreted as the remains of a pit house, c. 13 m<sup>2</sup> large. Post holes are identified around the cultural layer, and hearths are seen inside and outside of the dwelling structure. In addition, cooking pits and a midden of fire-cracked rock are documented outside the dwelling. There are few signs of younger disturbances affecting the dwelling. The lithic assemblages are homogenous and typical for the Middle Mesolithic period, with a total number of 22 000 from the site. More than 4000 finds were retrieved from inside the dwelling. Hovland 3 is dated by 18 radiocarbon dates. Eight dates are from the dwelling, and ten dates are from associated structures. The site can be dated to c. 7600–7450 cal. BC.

While Hovland 3 shows signs of being used intensively and repeatedly, the other sites are of a more mobile character (chapter 18). The sites consist of a number of find concentrations of varying size and composition. Structures such as hearths and cooking pits are identified at several sites. In cases where hearths are preserved, the find distribution shows a relation to such structures.

In general, the find assemblages vary between 50 and 8000 lithic finds. The find's character and the find composition indicate mobility and that the sites were parts of a larger settlement system. Raw materials and tools have been imported into and exported out of the sites, leaving varying stages of the tool-production process present at the sites.

The investigated time span is a period of change in material culture and lithic technology in Northern Europe. The excavation's results have also provided us with indications of important changes in settlement patterns in the Mesolithic. The preceding Early Mesolithic period is understood as a highly mobile society, and the succeeding Late Mesolithic period has been interpreted as a period of stable and semi-sedentary societies. The results from E18 Bommestad-Sky do however indicate that settlement in the Middle Mesolithic period can be perceived as a more semi-sedentary society than previously assumed (e.g. Jakslund 2001). Thus, the society of this period shows more resemblances with

Late Mesolithic than Early Mesolithic societies. As a consequence, discussions of important changes in coastal settlement in Scandinavia can be discussed in light of the data material generated by the project (chapter 19).

### TECHNOLOGY AND TYPOLOGY

The artefact assemblages have primarily been classified according to morphological principles. Despite the chronological time span, the total lithic assemblage is homogenous and displays strong typological and technological similarities. Differences seem to be related to functional factors, like differences in activity and site types, rather than chronological variation. The artefact material from the excavated sites corresponds with other excavated Middle Mesolithic coastal sites in south-eastern Norway.

The dominating raw material used for tool production is high-quality flint. The artefact assemblage is characterised by standardised blade production. Blades are produced from sub-conical and conical single-platform cores with regularly rejuvenated and faceted platforms with an angle close to 90 degrees. This lithic concept does, together with the high regularity of the blades, indicate the presence of pressure-blade technique as early as 8000–7900 cal. BC. Technological analysis of blade assemblages from the site Nordby 2 indicates that pressure technique was applied for the production of microblades and bladelets, in combination with indirect and direct techniques for the production of macroblades. Practically every stage of blade and blade-tool production is recorded on the sites.

Among the recovered tools are triangular microliths, barbed points, bores, burins, burins on snapped blades (rulers), scrapers and knives dominantly made from blades. Microburin technique seems to be absent, and microliths are produced using snap-break techniques. The presence of both triangular microliths and barbed points conforms to a previous hypothesis that there is no chronological difference between the types. Flint-core axes and production waste are recorded at some of the sites. The use of non-flint raw materials is limited and seems primarily to be connected with production and use of ground-pecked axes and hatchets made from local raw materials, like diabase, hornfels, and metarhyolite. Some waste material from axe production is recovered. This indicates production of non-flint axes as early as 8000–7900 cal. BC.