

## Geophysical survey - archaeological excavation - micromorphological analysis. What do magnetic anomalies show? An example from Hedeby

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In 2002, a magnetic survey was carried out in the Viking-Age trading settlement of Hedeby, Northern Germany (von Carnap-Bornheim, Hilberg 2007; Hilberg 2003, 2007, 2009; Neubauer *et al.* 2003). The aim of the magnetic survey was to redirect the perception that up to then had been concentrated on the excavated areas to the historic site as a whole. The magnetic survey yielded great results. For the first time something similar to a map of the proto-urban town of Hedeby could be glimpsed. But the closer one looks, the more the question poses itself of what is actually shown by the magnetic survey. How does the two-dimensional magnetic survey relate to the three-dimensional reality of nearly three centuries of occupation and the up to two-metre thick, highly stratified archaeological layers, shown by the excavations?

In a case study this issue of correlation of geomagnetic anomalies and archaeological excavation is pursued using the example of extremely strong magnetic anomalies on both sides of one of Hedeby's most important high streets and comparing it to the settlement development as it is highlighted by excavation (Schultze 2008: 235-243). To take the study even further, cores were drilled on the spots of the magnetic anomalies and measurements of magnetic susceptibility and micromorphological analysis were carried out on these to explain the layers of extremely high magnetism.

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Fig. 1. Hedeby's main road running parallel to the waterfront seen in the geomagnetic survey (strong anomalies regularly spaced on both sides of the road) and the excavation (excavation results shown in a simplified way)

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