11. ORGANIC RESIDUE ANALYSIS

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11.1 Introduction and methodology

Lipids, the organic solvent soluble components of living organisms, ie the fats, waxes, and resins of the natural world, are the most frequently recovered compounds from archaeological contexts. They are resistant to decay and are likely to endure at their site of deposition, often for thousands of years, because of their inherent hydrophobicity, making them excellent candidates for use as biomarkers in archaeological research (Evershed 1993).

Pottery has become one of the most extensively studied materials for organic residue analysis (Mukherjee et al 2005) as ceramics, once made, are virtually indestructible and thus are one of the most common artefacts recovered from archaeological sites from the Neolithic period onwards (Tite 2008). Survival of these residues occurs in three ways: rarely, actual contents are preserved in situ (eg Charrié-Duhaut et al 2007) or, more commonly, as surface residues (Evershed 2008). The last, most frequent, occurrence is that of absorbed residues preserved within the vessel wall; these have been found to survive in >80% of domestic cooking pottery assemblages worldwide (Evershed 2008).

Lipid analysis and interpretations were performed using established protocols described in detail in earlier publications (Correa-Ascencio & Evershed 2014). The full report is presented within the site archive.

11.2 Conclusions

The objective of this investigation was to determine whether absorbed organic residues were preserved in two body sherds from a decorated Neolithic vessel excavated from Grantown Road, Forres (Context (1128) from Pit [1127]). The results, determined from GC, GC-MS, and GC-C-IRMS analyses, demonstrate that the vessel was used to process dairy products, such as milk, butter, and cheese. The vessel does not appear to have seen sustained use, which could be a feature of the burial environment. It may have seen little use before deposition or was made specifically for the purpose of being left in the burial filled with dairy products.

It is difficult to make interpretations based on one vessel alone but the exploitation of dairy products was an important part of the Early Neolithic 'package' in Britain and Ireland (cf Copley et al 2005; Cramp et al 2014; Smyth & Evershed 2015) and an overwhelming predominance of dairy products (80%) was associated with Neolithic pottery throughout the north-east archipelago of the British Isles (Cramp et al 2014) and from the island of Ireland (89%; Smyth & Evershed 2015).