Geoarchaeology at Snusgar in 2010 (SG10 and MW09)

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Introduction
In the 2010 excavation season the area opened for excavation and geoarchaeological assessment was much the same as in 2008, exposing a large area of a longhouse discovered previously, and a later additional house added on to it. Of particular interest in this season was an identified metalworking area located outside of and adjacent to the later addition; this was the area that included context [2202], a mixed black and red deposit with frequent finds of metal slag (mainly iron), shell and animal bone. This area of the site had been sampled in 2008 for soil micromorphological study; in particular, exposed profiles containing multiple interpreted floor layers of clay and silt, with probable wood ash inclusions, had been sampled using kubiena tins. These layers were described again in greater detail in 2010, and further exposures of them and their distribution in relation to other features and structures were assessed. A plan for additional sampling for geochemical study of use-of-space in the various structural areas was also established.

Additional study of the ‘metal-working area’
The identified ‘metal-working area’ adjacent to the late house addition at the site became much better defined in 2010 through further excavation. It became clear that there were several apparent changes across horizontal space in relation to metal-working activities. For example, the distribution of slag as identified through excavation showed some restriction, as did areas with frequent charcoal deposits.

In addition, an area, restricted in size, with multiple stratified ‘floors’ was identified in plan and excavated. These stratigraphically related to similar ‘floor’ layers identified in 2008, recorded in section and sampled for soil micromorphological study. In the field, the ‘floor’ layers comprised alternating very fine layers (<2cm thick) of apparently pure clay, clay mixed with silt, and apparently pure silt. The silt layers appeared to be composed primarily of wood ash. This corresponds with the descriptions of the profile mentioned above. In 2010 additional exposures of these ‘floors’ were seen in baulks in various parts of the ‘metal-working area’. Several of the ‘floor’ layers were separated by wind-blown sand, suggesting to the excavators that the area was not enclosed (J. Harrison 2010 pers. comm.). However, the preservation of clay and silt (particularly ash) layers in this context suggests that even if not enclosed, the area was probably covered by some kind of roof.

In more detail, the ‘floor’ layers recorded comprise the following four main types of deposits:

- c. 0.5 to 3 cm-thick layers of grey silt (pure or clayey), dry and compacted, and often interrupted as if blown or trampled away. These appear ‘ashy’.
- c. 0.3 to 3 cm-thick layers of brown or grey-brown clay
- iron panning, apparently related to the ‘floor’ layering, found on top of, between or immediately under the above layers
- c. 0.3 to 2 cm-thick layers of windblown yellow sand and brown sand
An additional soil micromorphology sample was taken from these floors within the metalworking area. Sample A8 2202 contains the following stratified deposits, listed from the top of the sample down:

**Soil micromorphology sample A8 2202**

<table>
<thead>
<tr>
<th>Context no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>Yellow sand layer</td>
</tr>
<tr>
<td>[2119]</td>
<td>3-4 cm thick brown sand layer with frequent charcoal, fragments of clay and unidentified red inclusions</td>
</tr>
<tr>
<td>[2202]</td>
<td>1 cm thick layer of moist black silt and charcoal, lumps of grey-yellow clay and fine layers and zones of red sandy clay. This context has been associated with frequent metal slag, and is related to an interpreted furnace deposit</td>
</tr>
<tr>
<td>[2203]</td>
<td>Yellow-brown sand layer</td>
</tr>
</tbody>
</table>

*Figure 1: Sample A8 from the ‘metal-working’ area deposit [2202]*

To the north of the ‘metal-working area’ with slag, there was an additional area of spatially-delimited possible surface/floor layers. These covered a depth, as exposed at time of recording, of at least 40 cm, and included a sequence of at least ten layers separated by yellow wind-blown sand deposits. These are similar to the layers noted above, but with some variations. Some of the layers here appear similar to layers previously excavated associated with kelp burning (red silt and sand layers), while others comprise compacted grey silt.
(possibly ash) and grey-brown clay as noted in the ‘metal-working area’. There appear to be some podzolic features, including some possible iron panning and possibly leached layers. In this case, however, it was unclear macroscopically if the reddening seen in these layers represented illuviated iron oxide deposits on sand grains, or simply oxidized sand from burning. That issue may be clarified through thin section study.

These layers disappear to the north, but are also seen in the baulk between context [2089] and the ‘metal-working area’, as well as across the northern half of that area, up to the wall that runs perpendicular to [2065]. Although the ‘floors’ appear to end at that point, underneath [2065] and its abutting partial wall [2057] there are deposits similar to the lower layers seen under this floor sequence. These latter deposits run underneath wall [2057]. This variation through the sequence suggests that the earlier activities seen in this location predate wall [2057], but that the later activities related to the upper floor layers post-date that wall. In the site record, it appeared that most of these layers had been included in one context ([2086]). However, that context, which was sampled for soil micromorphological study in 2007, is recorded as a yellow shell-sand. These multiple fine layers were recorded by myself in 2008 as contexts [2087] and [2089], and they will be referred to as such in all reports related to the geoarchaeology of the site and use-of-space recorded in the preserved ‘floors’. A detailed section was drawn of the deposits in this area (sequence [2109]-[2086]-[2089]-[2087]) to aid in thin section interpretation. It has yet to be digitised, and is not included here.

The matrix of the deposits discussed here, as noted in 2010 from the various notes and exposed profiles, appears to be as follows, from later to earlier deposits:

- [2042] wall
- [2057] wall
- [2109] turf layer
- [2086] sand
- [2089] metal-working deposits (floors)
- [2087] metal-working deposits (floors)
- [2088]
- [2091]
- [2076]

Soil micromorphology samples targeting these deposits have been taken in various years as follows:

<table>
<thead>
<tr>
<th>Sample No. (Year)</th>
<th>Contexts</th>
</tr>
</thead>
<tbody>
<tr>
<td>168 (2007)</td>
<td>[2086]</td>
</tr>
<tr>
<td>237 (2008)</td>
<td>[2086] under wall [2057]</td>
</tr>
<tr>
<td>236 (2008)</td>
<td>[2087]</td>
</tr>
<tr>
<td>238 (2008)</td>
<td>[2087] under wall [2057]</td>
</tr>
<tr>
<td>247 (2008)</td>
<td>[2105] yellow clay ‘floor’ on top of charcoal-rich area [2022]</td>
</tr>
<tr>
<td>A8 (2010)</td>
<td>[2219]-[2202]-[2203], as described above</td>
</tr>
</tbody>
</table>
Other notes from Snusgar 2010
Following on from previous years, a sampling procedure for future geochemical study of use-of-space was established for sampling new deposits exposed in the main longhouse building, the ‘metal-working area’ and ‘outside’ areas. These samples were meant to be taken before the site was closed in 2010.

Under the main longhouse wall (at contexts [2146]/[2163]) a possible buried soil horizon was identified. This was not sampled.

Marwick (MW09)
As no geoarchaeological assessment was made of the 2009 recording of a site eroding out of a cliff at Marwick, the site was revisited and the profile was examined. A soil layer underlying [1012] and overlying glacial till [1005] was described and one kubiena tin (sample ◊16) was taken from it to assess its history. The soil layer was friable reddish-brown sandy silt with c. 60% grit, and occasional shell fragments and charcoal flecks. It also included occasional very fine layers of redeposited clay originating from the underlying glacial till. This layer is the possible subsoil or lower soil horizon into which wall [1009] was cut.
Figure 3: Kubiena tin sample from soil layer at Marwick